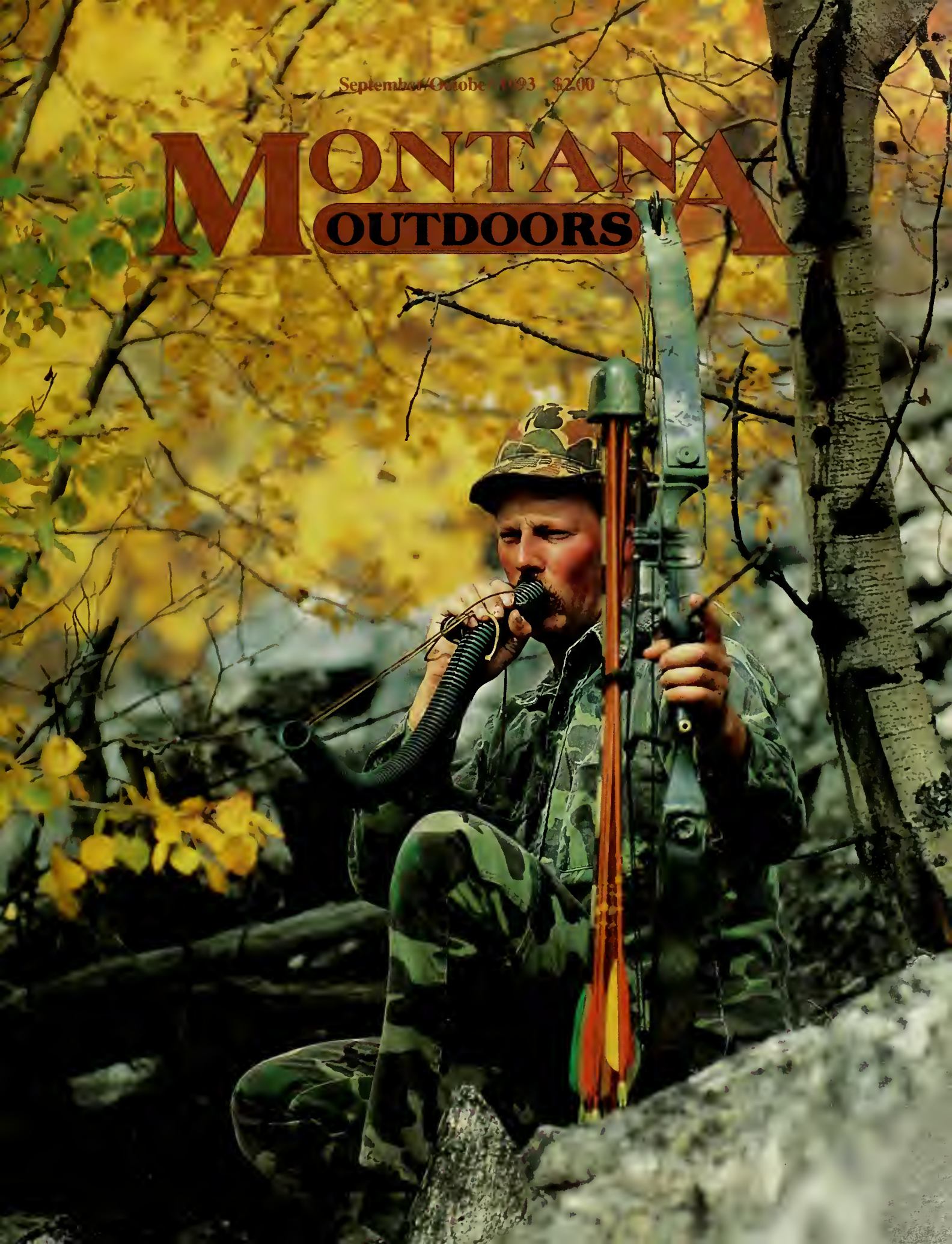
September/October 1993 $2.00

MONTANA OUTDOORS



Our Point of View

MIKE ADERHOLD

A mountain plover darts from its nest in the sparse, low grass and rocks on a prairie ridgetop. The small, mottled eggs are nearly impossible to see.

To the east lie heaped burrows of prairie dogs. The sentinels sound their chirping bark then disappear as we approach. Club moss chokes out the grass on the undisturbed ground before us. Cattle graze in the distance.

One creature is missing, but few would ever know. It was seldom seen when it was here. It is a creature of the night.

The black-footed ferret has been gone for many years. Long ago, Indians made sacred medicine pouches from this rare, fleet-footed animal.

Today it is a source of controversy. It is an endangered species, once thought to be extinct...soon to be reintroduced to the isolated plains and remote breaks of north-central Montana.

To reintroduce an endangered species to this isolated country would seem to be of little concern, except to those who have known no other land. For generations they have found a way to live on this hardpan soil, when others would have walked away. There is little in their favor.

Today they stand and face us. They talk about what it means to live here. They do not mince words. They live in a world where there is little they can control. And one of those things is the government. They have little trust in government.

They understand the plan to recover the black-footed ferret. They can live with the plan. But what assurance can we give them that, like the fickle prairie rains, the plans will not change?

They can live with ferrets.

After all, ferrets eat prairie dogs.

It is not the ferret they fear.

Patrick J Graham

Patrick J. Graham
Director
Montana Department of Fish, Wildlife & Parks

RODNEY SCHLECHT

Bighorn sheep can be seen on the Kootenai Falls Wildlife Management Area during much of the year (page 2).

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COVERS

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DAVE BENNETT

A RIVER RUNS BY IT

by JERRY BROWN

VETERANS OF FIRE, wind, drought, insects, and disease, centuries-old ponderosa pines stand vigil over the Kootenai River canyon near Kootenai Falls. Had these ancient patriarchs of the forest been capable of keeping historical records in their growth rings, we would be privileged to insights into the yearly comings and goings of native people in this area as far back as the 1500s.

Archaeological evidence tells us that indigenous people used the canyon as a major travel route for hundreds of years prior to the pilgrims' landing at Plymouth Rock. When the first white men set foot in the canyon in the early 1800s, some of these pines were already 200 to 300 years old, and a portage trail around Kootenai Falls used by the Kootenai Indians was already well established.

Journals of early explorers, fur traders, prospectors, and missionaries shed light on the more recent history of the area, telling us what travel through the canyon was like in the 1800s. Explorer David Thompson, who visited the area in 1808, had nothing complimentary to say about the rugged portage along the north side of the falls. Fur traders of the Northwest Company and eventually the Hudson's Bay Company continued to use the route into the mid-1800s.

In 1845, a Jesuit missionary named Pierre Jean DeSmet, en route to the St. Ignatius Mission by way of the Kootenai River, penned this description of the portage around the falls:

> At a place called the Portage, the river crosses a defile of mountains, or rather of precipitous and frightful rocks; and the traveller is compelled, for the distance of eight miles, to risk his life at every step, and brave obstacles that appear, at first sight, insuperable....Whatever can be imagined appalling seems here combined to terrify the heart —livid gashes of ravines and precipices, giant peaks and ridges of varied hue, inaccessible pinnacles, fearful and unfathomable chasms filled with the sound of ever-precipitating waters, long, sloping and narrow banks, which must be alternately ascended, and many times have I been obliged to take the attitude of a quadruped and walk upon my hands....Amid these stern, heaven-built walls of rocks, the water has forced its way in varied forms, and we find cataracts and whirlpools engulfing crags and trees, beneath their angry sway.

The first expedition of settlers to pass through the area, led by James Sinclair and bound for Spokane, made their way through the canyon and around the falls in 1854 along what had come to be known as the "Kootenai Trail." Crude log structures and names and dates blazed in trees indicate that westbound travelers were using the trail extensively

by 1860. The late 1800s witnessed a flurry of human enterprise along the Kootenai River near the present-day town of Libby. Mining, logging, and fur trapping all contributed to settlement of the area.

Lured by prospects of the Kootenai being a productive fruit-growing region, farmers came to the river valley around the turn of the century. It was not until 1911, however, that the Burrell family established the first patented homestead in the Kootenai River canyon just two miles upstream from Kootenai Falls along the north shore of the river. Nearly a decade later, the Hunter family took up residence just upriver and adjacent to the Burrell homestead. Together, these two homesteads occupied the only habitable and marginally farmable terrain above the falls for nearly five miles. As the reality that the canyon was unsuitable for subsistence farming became apparent, the homesteads were abandoned or sold, some of them changing hands several times in succeeding years.

In the late 1970s, Dale Sheppard, owner of the old Burrell homestead, agreed to sell his property to the Department of Fish, Wildlife & Parks (FW&P) under the "landed estate option," which allowed him to remain on the property until his death. The money for purchase of this land—$151,000—was made available through the Libby Dam Mitigation Fund administered by the U.S. Army Corps of Engineers in cooperation with FW&P. This fund was established to replace wildlife habitats inundated when construction of Libby Dam created Koocanusa Reservoir. In 1982 the property was formally turned over to FW&P and designated as the Kootenai Falls Wildlife Management Area (WMA).

Five years later, Mrs. Alice Kilpatrick, owner of the old Hunter homestead, offered to sell the department her land. The $200,000 needed for purchase of this property came from Montana's bighorn sheep auction fund, which, through sale of one bighorn ram permit annually, has provided the state with over half a million dollars in revenue earmarked for sheep habitat acquisition, habitat improvement, and research. When acquisition of this parcel was finalized in June of 1988, it too became part of the Kootenai Falls WMA. Both properties were sold to the state for less than appraised value, primarily because the owners were keenly interested in keeping the area undeveloped for benefit of bighorn sheep and other wildlife.

ALTHOUGH KOOTENAI FALLS is one of the smallest WMAs administered by FW&P, its exceptional wildlife values, especially for bighorn sheep, make it a critical area. Consisting of 172 acres, the WMA lies adjacent to the Kootenai River beginning approximately eight miles downstream from Libby. Bounded on the north, east, and west by national forest land, it includes three miles of Kootenai River frontage on its southern boundary. Much of the original Kootenai Trail traverses its length. Although the WMA occupies relatively gentle terrain along the river terrace, the land immediately upslope could best be described by terms such as steep, rocky, broken, precipitous, rugged, and maybe a few of the more colorful ones used by Father DeSmet in his account of the area.

Named after the original settlers, three small tributary streams, Hunter Gulch, Burrell Creek, and Dad Creek, dissect the WMA and tumble into the Kootenai River from the north. Forest habitat types ranging from wet cedar/hemlock to dry ponderosa pine reflect the coastal influence prevalent in this part of Montana. In fact, most coniferous trees common to the Northwest can be found on the WMA. River birch, black cottonwood, willow, and red-osier dogwood grow along the river, contributing to the diversity of vegetation and wildlife habitats found there.

The primary reason for acquisition of the WMA was to provide security for the Kootenai Falls bighorn sheep herd. Presently estimated at 125 to 150 animals, the herd originated from a 1954-55 transplant of 14 sheep to the area from Wildhorse Island in Flathead Lake. Although these sheep range over a large area, they can be found on the WMA during all months of the year. The greatest use occurs in late winter and spring, when sheep are seeking succulent new grasses high in nutrients. This is an especially critical time for ewes entering the final stages of pregnancy after a winter of using up body fat reserves.

By late April, pregnant ewes tend to desert the lower slopes along the WMA and search out rugged, secluded sites in the upper rocky canyons to have their lambs. Normally, lambing begins in early May and peaks about the 15th of the month. Bighorn lambs are precocious and able to follow the ewes soon after birth. Nursery groups drop back onto the WMA in late May and June to capitalize on the continued greenup of grasses, forbs, and flowering shrubs, and can be viewed by visitors walking through the WMA or glassing from across the river at special wildlife viewing sites along U.S. Highway 2.

Other large mammals that inhabit the WMA, at least seasonally, include white-tailed deer, mule deer, and black bear. Moose and elk are occasional transients through the canyon, while bobcats, coyotes, and mountain lions, attracted to the area by the abundance and diversity of prey species, are often present but less likely to be seen by visitors. The three miles of river frontage and associated riparian vegetation provide habitat for a variety of aquatic furbearers, songbirds, shorebirds, waterfowl, and raptors. Canada geese nest along the rocky shoreline as well as atop some of the cliffs overlooking the river. At brood-rearing time, the honkers may be seen grazing the hayfields adjacent to the river. Osprey, which return to the area in early April each year, are frequently observed fishing in the river along the WMA. Bald eagles, common winter residents on the Kootenai, utilize large cottonwoods on the WMA as perching trees from which to conduct the day-to-day business of survival.

The department's goals for the Kootenai Falls WMA are simple: To maintain and enhance the wildlife habitats on the area while keeping it otherwise undeveloped and semi-primitive in nature. Although a primitive road travels the entire length of the property, only authorized motor vehicles are allowed on the WMA. To date, management activities have focused primarily on cleanup and maintenance projects. With the exception of two old log homes of historical significance (remnants of the Burrell homestead), most structures have been removed from the site through salvage contracts with local parties. Volunteers from two local conservation groups, the Kootenai Wildlands Alliance

RODNEY SCHLECHT

and Libby Rod and Gun Club, spent several days hauling over 25 truckloads of junk from the property to the landfill, and still more needs to be done. Interior fencing, fallen into disrepair and strewn around the brush, has been removed to facilitate travel by animals and people. Because livestock grazing is not permitted on the area, there is no need to maintain fencing.

It seems as though spotted knapweed has become a plague on most agricultural lands in western Montana. The department has inherited this problem on most WMAs in the northwestern part of the state, and Kootenai Falls is no exception. A noxious weed management strategy, including tilling and cultivation of existing hayfields, fertilization, and chemical treatment has provided encouraging results. Renovation of the small hayfields on the WMA through an agricultural agreement with a local farmer has helped to control the knapweed problem, allowed a single cutting of hay for the contractor, and provided productive foraging areas for bighorn sheep and deer.

The Kootenai Falls WMA contributes significantly to the

RODNEY SCHLECHT

Bighorn sheep (right) can be seen on the Kootenai Falls WMA during all months of the year, while ospreys (above) are spring and summer residents.

health and well-being of the bighorn sheep herd inhabiting the area. The sheep are an asset to local residents and visitors in that they provide countless hours of wildlife viewing pleasure as well as limited hunting opportunity for a few sportsmen fortunate enough to draw permits in the annual drawing process. But in addition to the sheep and other wildlife, many amenities attract visitors to the WMA.

Prior to 1988 only a few friends of the landowners were allowed access to this area. Since that time, the area has been "discovered," and public use has increased almost exponentially. On a Saturday or Sunday during spring and summer it is not uncommon to see 15 or more vehicles parked at the WMA entrance gate. Walkers, hikers, joggers, mountain bikers, horseback riders, photographers, birdwatchers, and fishermen are all drawn there by several miles of undeveloped river frontage and the semi-primitive nature of the area. We want visitors to be aware that the purpose of the WMA is primarily to benefit wildlife, and that the rules posted at the entrance are to help us manage the area for its intended use as well as provide future visitors with the opportunity for a pleasant experience.

The Kootenai Falls WMA is a unique place. In the strict sense of the word "legacy"—something of value handed down to us from our ancestors—this small area embodies important elements of our cultural, historical, and natural heritage. ■

The primary goal of Kootenai Falls WMA is to provide year-long habitat for bighorn sheep and seasonal habitat for white-tailed and mule deer, bear, and a variety of waterfowl, shorebirds, songbirds, and raptors.

MICHAEL J. BARLOW

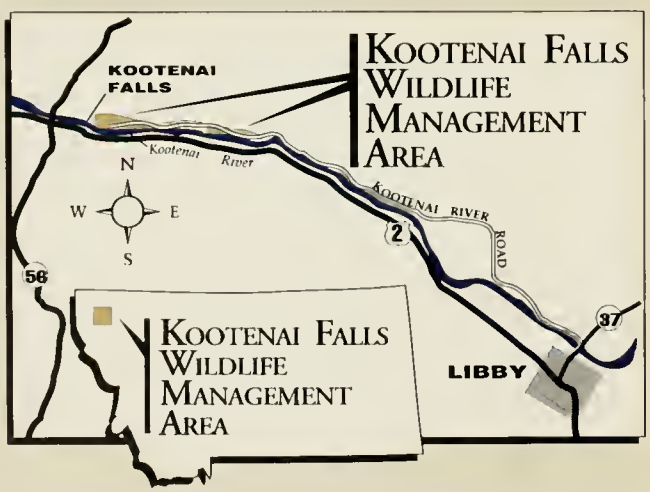
Kootenai Falls Wildlife Management Area

Location: Lincoln County in northwestern Montana, seven miles northwest of Libby.

Size: 172 acres.

Acquisition date: 1982 and 1988.

Access: Take State Highway 37 north from Libby to Kootenai River Road (county road).

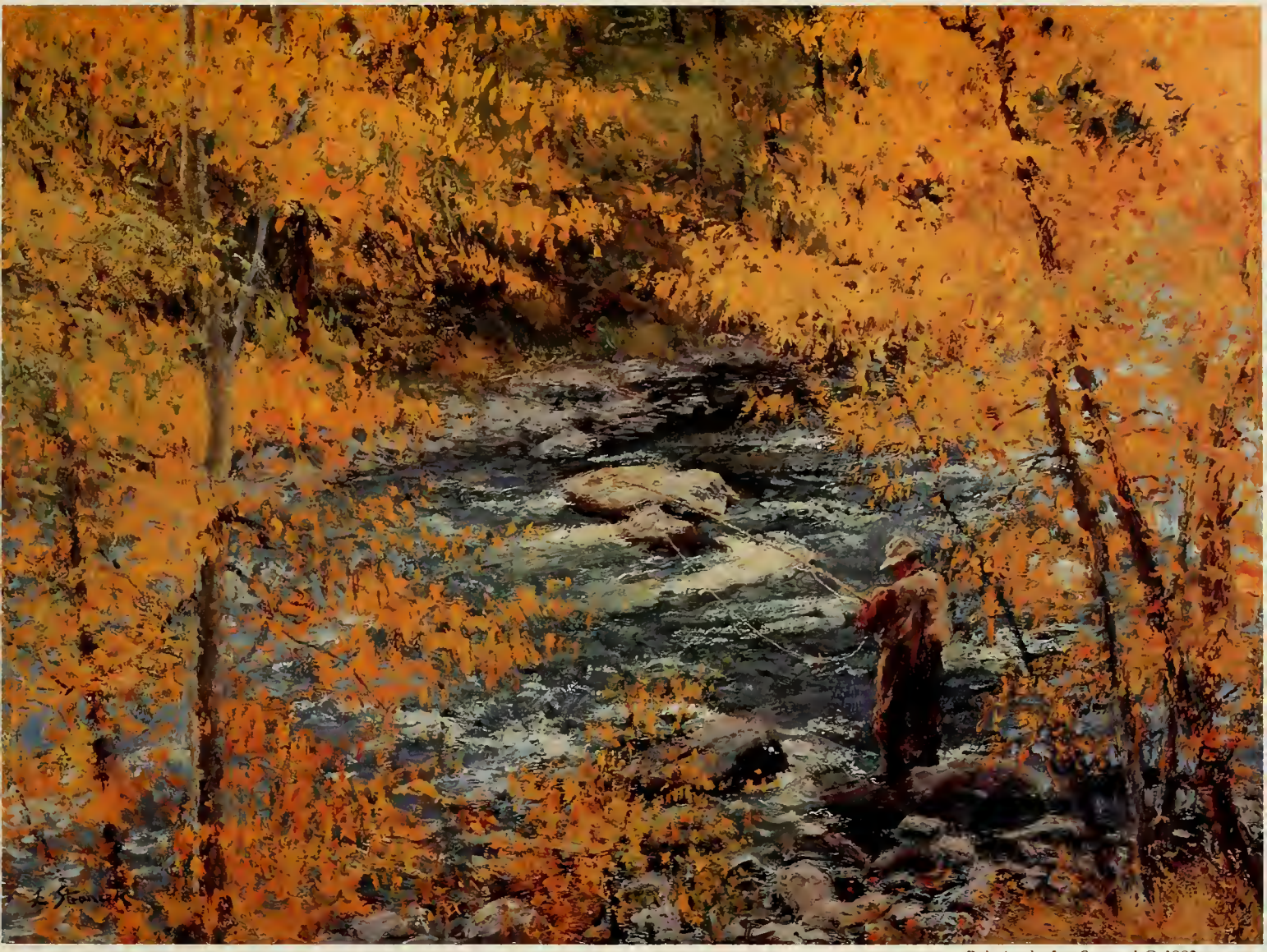


Management goal: To provide year-long habitat for bighorn sheep and seasonal habitat for white-tailed deer, mule deer, and black bear.

Hunting opportunities: Bighorn sheep hunting by permit only. Archery and rifle hunting seasons for mule deer, white-tailed deer, and black bear, as well as upland game bird and waterfowl hunting, are open to licensed hunters.

Fishing opportunities: The WMA provides walk-in fishing opportunities along three miles of the Kootenai River.

Wildlife viewing: Bighorn sheep, white-tailed deer, and mule deer may be seen on the WMA during any time of year, but are most observable from fall through spring. Black bears are regular fall visitors. Moose and elk are seen occasionally, while bobcats and mountain lions are often present but seldom viewed. Bald eagles are in the vicinity of the WMA throughout the year, while ospreys are common during spring and summer. Shorebirds, waterfowl, and a host of songbirds can be seen along the river during much of the year.



Painting by Lee Stroncek © 1992

Bel-Air on the Big Hole

A story about happiness

by SCOTT WALDIE, illustrated by LEE STRONCEK

I imagine my remembrances of Second Street have magnified through the years and I plead guilty to viewing those past summers through a sentimental eye. With the passage of time the laughter echoes louder, huckleberry pails grow larger, hay bales and irrigation pipes heavier, and the trout have reached frightful proportions.

Hamilton's Second Street of 1951 differed slightly from the other maple lined, seldom traveled, randomly paved, Norman-Rockwelled streets of southwestern Montana. Second ran north to south in a staunch residential fashion, giving way to the commercial influences of a barber shop and the tobacco and magazine store where it intersected Main.

My Uncle Ray and Aunt Dora owned a piece of Second Street. Their home was a modest study of white clapboard and river rock. It was garnished by lilacs and columbines and the kind of lawn that invited barefeet and croquet and played host to

some of history's most brutal badminton games. The side yard was tilled into one of those not-enough-corn, too-much-zucchini, and knee-deep-in-beans kind of vegetable gardens. The Bitterroot Mountains supplied the backdrop while Blodgett Canyon launched an armada of cumulus clouds, mighty frigates of summer sky into full sail across the valley floor.

It was late in the afternoon on the Fourth of July, and the din of Hamilton's parade and fireworks had receded from Main, but over on Second another celebration was just beginning. Dora and Ray's home was now the staging area for the annual Hart family reunion.

Reunion is probably a poor choice of words—it's too tame. Genetic chaos might be more descriptive, as mother came from a family of nine, which in turn spawned families of three or more, and all but two lived in the valley. The original nine were annually spaced fall babies, which strongly suggests the severity of the Bitterroot Januaries.

The lawn was littered with Harts. The aunts were busy readying the family cars for the reunion's final destination: Dora and Ray's cabin, 50 miles south near the summit of Lost Trail Pass. They systematically loaded station wagons, trailers, and pickup beds with all the supplies necessary to endure the next three days. These included groceries, bedrolls, clothing, air mattresses, bandages, and enough Jim Beam to anesthetize them against the 20-some-odd cousins.

The uncles were grouped in the shade of an apple tree discussing the weekend's probable choices of fly patterns and offering the occasional suggestion to the ladies as to possible loading strategies that might expedite the departure of the caravan. The children were adding only to the noise. Rita pinching Betty. Penny scratching Steve. Denny maiming Ricky.

Soon the decibel level reached new heights, signaling the arrival of my grandparents, Woody and Mabel, rounding the Harts off with the third generation and giving the family the 100% attendance needed to leave. All present and accounted for, but for the obvious absence of Uncle Ray.

Ed and I had gone to the garden to fill our Prince Albert cans with fresh red worms. We feared bait carried in anything but a Prince Albert would surely prove to be less effective. Ed manned the spading fork and I rendered the worms from the soil, when suddenly Ed paused and drew my attention to the most amazing phenomenon. The Hart roar that so permeated the afternoon had stopped. We went to investigate and, as we rounded the back porch, the object that warranted all the silence was rolling into full view.

Over the curb it crawled and across the front lawn it glided, finally coming to a stop in front of the hushed crowd, a shimmering mosaic of reflections in the bright July sun.

Over the curb it crawled and across the front lawn it glided, finally coming to a stop in front of the hushed crowd, a shimmering mosaic of reflections in the bright July sun. We squinted, shaded our eyes, and slowly penetrated the glare, to see Uncle Ray backlit behind the wheel.

The silence was being replaced by a chorus of oohs and ahhs as Ray opened the door and eased from the front seat. His gnome-like body did not lend itself to dramatics, but he gripped each member of the audience as he introduced the newest member of the family.

With one foot on the running board and his forefinger tracing the roofline as a furrier might stroke an ermine, he announced, "This is a brand new nineteen-fifty-one Chevrolet Bel-Air. This is MY brand new nineteen-fifty-one Chevrolet Bel-Air. It shall never be degraded by the busing of noisy children back and forth from school. It will never be insulted by weekly trips to the grocer and butcher. And it will never be, and I repeat, *never* be slandered by being referred to as the family car. This automobile has been purchased for the sole purpose of transporting fishermen to and from streamside.

"Now if you gentlemen would care to load your rods, reels, and other implements of angling paraphernalia, you may do so at this time. And ladies, we might possibly be late this evening, depending on the hour of the afternoon hatch, prevailing winds, and the general mood of the river."

Uncles Arnold, Homer, Howard, and Dean were loaded and seated in the time it took Ray to regain his breath. Ray shooed the swarming cousins from the Bel-Air as one might chase chickens off the front porch, and swaggered back to the driver's seat. Then, with a tip of his hat, he jeered, "See you at the cabin."

That Bel-Air was a Detroit debutante commanding a victorious and well-attended coming out party. She was enameled in summer green chiffon, jeweled in just enough chrome to remain tasteful, robed in the finest mohair wraps, and scented in that distinct and irresistible fragrance which can only be described as "essence of showroom." It was easy to see how she had seduced Ray.

If her entrance was charming, her farewell was elegant. Relinquishing center stage, she bowed adieu and backed across the green velvet boards, issuing one final curtsy as she lowered herself over the curb. Ray turned the wheels south and hands expressing goodbye sprang from every window.

Ed and I ran with her until she gained speed and eased from our grasps. The summer's sun streamed through Second's maple canopy, creating a strobe-like departure, as the Chevy passed from sunlight to shadow. Satisfied we had craned our necks to the last possible glance, we returned to see the aunts finalizing the packing. All except Dora, who stood motionless, paralyzed by Ray's parting soliloquy. Later that evening, according to the family folklore, she delivered a fiery oration under the direction of Dr. James Beam. Thesis: the Compatibility of Bel-Airs and the Budgets of Forest Service Employees in Today's Economy.

The reunion meant many things: horse-

back riding, swimming, target practice, general mayhem for the cousins, and premeditated debauchery for the adults. But the focal point of the weekend was the family picnic and fishing the Big Hole.

Now I must move the reader ahead some 25 years. Encapsulated, the intervening quarter century saw many more reunions and annual sojourns, escorted by the Bel-Air into the Big Hole Valley. It also witnessed my transition from garden hackle to flies...to more fly rods, to more equipment, to more time fishing and less time working, to addiction, and finally to the one and only avenue left to justify my disease—guiding. I became a river junkie.

Late autumn and the maples were spreading their golden awnings over Second. I rounded the corner to see Ray raking up a mountain of leaves. He had somehow crept into his late seventies and had not been enjoying the best of health. His frame was as round and jovial as ever but, as he waved my truck in, I could see that his motions had slowed. His comic flair was still well intact, however, as he sent the rake flying into the middle of his pile. His arms and hands waving hallelujah fashion, greeting me not only as a nephew, but as a timely savior from the purgatory of yard work. Dora waved from the steps, and life felt full...the Bitterroots, fall, my aunt and uncle.

"Where're we going fishing, Uncle Ray?" I greeted, and waited for that patented lifetime answer.

Holding his palms facing one another, and after a moment of keen estimation, he spaced his hands a foot apart. "Oh, about this far from the bottom." It was a joke that had not lost any of its effect over the years. If anything, it had gained momentum.

Ray, still laughing, "How about you and me taking the Chevy over the hill tomorrow and fish the Big Hole? I'll bet it's fishing fine right now."

Some of the blue had fallen from his eyes, but the old forester's face was ageless, preserved in childlike wonderment and kindled with enchantment. The wrinkles and creases, which contoured his brow, laughed in memorial to the joy he shared.

That evening was reminiscing, laughing at those "you had to be there" situations which dot all family albums—including the most famous: the day Ray bought the Bel-Air. Now, almost three decades later, you could still draw an admirable rise from Dora.

Morning found us motoring south on Highway 93, relaxed, though involved in anxious conversation, and warm in the early light. It was rounding into one of those forever days, a freeze-frame in a lifetime film. The cottonwoods were distributing their leaves evenly, holding onto some, and letting others fly in golden flurries, nature's own ticker tape anticipating the coming of winter, even now shivering in the wings. The Bitterroot River paralleled the highway and tempted us at every bend, offering familiar holes and likely riffles, some jogging Ray's memory to retell a favorite story, others just receiving a silent note of recognition, and a subtle smile. Irresistible as she was, we traveled on to a higher mission, and Lost Trail Pass met us with our spirits high and our windows down. The Bel-Air conquered the summit running smooth and strong, not a trace of being winded. Her interior had aged little, with the only real sign of wear being Ray's shiny silhouette etched into the driver's seat. Her decor had evolved into a *Field & Stream* motif, leader packets artistically placed on the dash, and retired flies forested the driver's visor.

If the visuals didn't put you into a Corey

Painting by Lee Stroncek © 1986

Ford frame of mind, then the aromas would. The fragrance emanating from Ray's creel in the back seat and the odor of his pipe, coupled with the smell of lodgepoles and a small exhaust leak...sensitivities complete...if not somewhat overwhelmed.

As youthful as she remained on the inside, her exterior had aged well beyond her years. Her enamel gown had faded, testament to the Montana winters, and her chrome had oxidized to maturity. She had creases and wrinkles of her own, scarred from vicious encounters with cottonwood and willow. All campaigns victorious, her debutante days long past...the venerable trooper. I felt like the third ace drawn to a well-matched pair.

We roared over Chief Joseph Pass, past the battlegrounds, and descended into the valley of beaverslides and loose hay. A quick stop in Wisdom, to satisfy Ray's legendary sweet tooth. Within a few minutes the Chevy had wandered from the highway onto a south forty detour and after bumping through the dust, chattering across cattleguards, and precariously fording an irrigation ditch, we coasted into the shade of riverbank. The cottonwoods stood sentry to a sky of Ektachrome blue, and the river was running clear, with just a tint of copper.

"You know," Ray said as he switched off the ignition, "I really like this old car."

I smiled my most obvious smile.

Leaning against the fender, putting the finishing touches to rod and lines, Ray informed me he hadn't been in this spot in three years. "Just needed someone to give me a boost, I suppose. Don't necessarily need the company to go, but at my age," he laughed, "it's kind of comforting." The crystal had returned to his eyes. With all the pills and medications administered over the last several years, it was unmistakable what medicine remedied him the most.

As we sauntered toward the river, Ray stopped and reached for my fly rod, which was made from materials that NASA had first and, moving the tip from side to side and up and down, he paused in reverence to a fair judgment. "Still like the feel of wood." Then he pointed downstream. "Go to that far bend, where the willows meet the river, and fish back to the car. Don't worry about me none, I'll be close by." His hand quickly surveyed the waters that moved in front of us. "This stretch is better for wets anyways."

> The brown jumped and jumped again, then shot downstream, spinning me semi-circle. Ray and the Bel-Air blurred in the background as they carouseled past.

Waving good luck, I started to forge my way down a long forgotten game trail that meandered through a willow maze. I turned to see Ray making some final adjustments to his hipboots and molding his old gray flannel Stetson into a Spencer Tracy slant, brim down and meaning business.

Soon his old cane, a metronome from South Bend, was conducting a familiar melody over well-rehearsed waters. His line, dancing overhead in four-four time, choreographed the performance; a lifetime concert swaying to four-part harmony. And his music still plays in my ears.

Ray looked over his shoulder to catch me still watching. "Get ahead now, can't catch anything in those willows. Try some dries, Red Quills if you got 'em." A quick nod of the head and a reassuring wink animated his suggestion, elevating it from the level of a streamside tip to something you could use for collateral.

After using the trial and error method to solve the willow labyrinth, I stepped into a clearing. Meadow water boiled by like a mobile cauldron.

"Red Quills," I repeated. Added tutelage on a 20-year lecture course. As I stood on the edge of an undercut bank, feeling the river rolling underfoot, Ray's teaching weaved through my mind: Primers on knots and patterns, seminars on strategies and finesse, and field trips on shortcuts and tricks. So, with all his knowledge filed and crossfiled, I booked passage on a perfect midday and navigated upstream.

When the Chevy returned to view, the cottonwood shadows had bridged the river and, as I fished out the last few degrees of the bend, I could see Ray behind the wheel, clouds of pipesmoke lifting from the open door.

Leaning my rod against the rear fender, I flopped, waders and boots, into the passenger seat, bringing some of the river with me, one of the luxuries afforded the owners of fishing cars.

"Unbelievable day."

"Just right, just right. Didn't fish it hard, though, came back to the car for a breather and a pipe, and I must have dozed off. Did manage to catch a six-incher, though."

Perfectly baited for the annual "Who's on First" scenario, I bit. "Six inches is hardly worth mentioning."

"It is if that was the distance between his eyes."

Doing my best to hold up the Bud Abbott end of things, I then had to ask, "How much do you think it weighed?"

"Hard tellin', but I'd say his shadow could have gone ten pounds.

"Tell you what I did see though. See that fallen timber straight across?"

"Yeah."

"See that clump of meadow grass, just upstream?"

"Okay."

"Watch."

A slow series of arched rings swirled as if on cue. Ray gave me a passing shove of encouragement as he pointed to a second rise.

My waders left a silent wake as I searched for footing on the Big Hole's mossy bottom. The last few steps shuffled in cadence with my false-casting as I slid into position. One last stop of my rod tip and the fly floated into place. The fly disappeared. My line straightened and rooster-tailed upstream. The brown jumped and jumped again, then shot downstream, spinning me semi-circle. Ray and the Bel-Air blurred in

Bel-Air *continued on page 13*

PHEASANTS FOREVER SPONSORS "TAKE A KID HUNTING DAY"

Last October the Central Montana Chapter of Pheasants Forever sponsored a "Take a Kid Hunting Day." The event created an opportunity for young people to participate in a supervised upland bird hunt with adult members of the chapter. Prior to hunting season, we sent letters to 125 recent graduates of the Montana Hunter Education course asking them if they would like to participate in a supervised pheasant hunt and whether or not they would have an opportunity to hunt with a parent or relative in the future. Based on response to the letters, eight young adults between the ages of 12 and 16 were selected. Permission from a parent or guardian was required.

Two young hunters were paired with two adults for each hunt. The importance of landowner/sportsman relations, conservation, hunter ethics, habitat, the proper care of game, field dressing birds, and the use of a trained dog were emphasized before and during the hunt. All the kids had an opportunity to experience the surprise and excitement of a rooster pheasant flushing at their feet. Startled faces, big smiles, and tired feet and dogs were common by the end of the day. To top off the event, the Central Montana Chapter held a pheasant dinner in November. Over 50 people—hunt participants, family members, and chapter members—attended the dinner in the Fergus County Sheriff's Complex. The event was a tremendous success judging by the broad smiles on the attendees' faces. Plans are being made to hold a similar pheasant hunt this fall, and the chapter hopes to make it an annual event.

With the decline in the number of hunters nationwide it is important that today's kids have an opportunity to experience the exciting sport of hunting. Greater demands on time and increasing urbanization are reducing opportunities associated with hunting. Several states in the upper Midwest have established special youth seasons and licenses to provide greater opportunity for young adults.

Bryan Anderson (left) and Luke Beyer show off the pheasants they bagged with the help of Bill Berg's Pepper and Rich Johnson's Niki.

The Central Montana Chapter of Pheasants Forever "Take a Kid Hunting" event is just one way of providing a quality hunting experience for Montana's young people. Besides this event, the chapter is involved in several other projects. Since its beginning in 1991, chapter members have assisted private landowners with five habitat projects and held two fundraiser clay pheasant shoots. The habitat projects have involved planting more than 8,000 trees and shrubs. The clay pheasant shoots, besides raising funds for future projects, also provide instruction for first-time shotgun shooters. For more information on the Central Montana Chapter of Pheasants Forever and its projects please write P.O. Box 1021, Lewistown, MT 59457.—*Bill Berg, Central Montana Chapter, Pheasants Forever*

CELEBRATE NATIONAL HUNTING & FISHING DAY

One of the most popular themes in the history of National Hunting & Fishing Day, "Put an Indoorsman in Your Shoes" has again been selected as this year's theme. "We brought this classic out of retirement," said Bob Delfay, president of the National Shooting Sports Foundation, primary sponsor of NHF Day, "because it highlights a message that's as important today as it was in the mid-seventies. Indeed, our success in reaching out to an increasingly urban America is more important now than ever." This year's NHF Day is Saturday, September 25, 1993.

In recognition of the millions of women who have joined the ranks of hunters and anglers, this year's theme has also been "genderfied" to include "Put an Indoorswoman in Your Shoes." "This is not only politically correct but also recognizes the active role that women are taking in the outdoor community," said Delfay.

The "Put an Indoorsman in Your Shoes" theme underscores the simple premise that if every sportsman in the country observed NHF Day by introduc-

Put an Indoorswoman in Your Shoes

National Hunting and Fishing Day®, September 25, 1993

ing one non-sportsman to hunting, fishing, shooting, and conservation, the public's understanding and appreciation of these American traditions would increase significantly.

"Most Americans are now more familiar with an environment of glass, steel, and concrete than they are with fields, forests, and streams, and many have lost touch with nature," commented Delfay. "There's a whole new world waiting for the new outdoorsman, and sportsmen have the keys to unlock it. One of the greatest favors any sportsman can do for friends and relatives is to take the time to introduce them to his favorite sports. This is especially true for children, since many have grown up without the traditional links to nature enjoyed by past generations."

Sportsmen must continue to introduce new people to the outdoors in order to maintain our hunting and fishing traditions—and to help stimulate their growth. These outdoor traditions can continue only if there are teachers willing to carry them into the future. And, because of rapid urban development, increasing environmental threats, and challenges from special interest groups, the need for hunters and anglers to stand firm for wildlife and the environment has never been greater.

As always, NHF Day will be marked by a wide range of activities sponsored by sportsman's clubs, conservation groups, and civic agencies. Whether it's a "small fry" fishing derby, a charity shooting match or "open house" at the local sportsman's club, there's an event that will guarantee your favorite indoorsman—or woman—a great time this NHF Day. Young or old, the first experience of hitting a target with gun or bow, or the sudden tug of a first fish, provides the same thrill of excitement we all remember from our own first time out. Whatever the reason, NHF Day could be the best day of the year for any indoorsman—and the first day of their life as an outdoorsman.—*National Shooting Sports Foundation*

Montana State Parks Calendar

SEPTEMBER

6-10—Native American Awareness Week at Chief Plenty Coups State Park.

Various activities for all ages focusing on Native American culture, history, and dress.

OCTOBER

Off-season camping fees now in effect, $4.00 per night with a State Park Passport.

NOVEMBER

Eagle Watch, Canyon Ferry State Park—Riverside, mid-November through mid-December. View the majestic bald eagles as they flock to this area to feed on spawning kokanee salmon.

26—1994 State Park Passports available. Great Christmas gifts! Buy now and save 20% off regular passport prices!

DECEMBER

Eagle Watch continues at Canyon Ferry State Park.

Book Reviews

FLOATING AND RECREATION ON MONTANA RIVERS, by Curt Thompson, Box 392, Lakeside, MT 59922 (also available at FW&P regional headquarters); 1993, 370 pages, soft cover, $19.95 plus handling.

I don't like guide books. To me, it's like looking up a word in the dictionary to see how it's spelled. If I knew how it was spelled to look it up, I wouldn't have to look it up.

My second pet peeve with many guide books is they don't guide. They give enough information to be dangerous, but not enough to be helpful. When I need a guide, especially a river guide, I need information. I want facts and mileages, I want tidbits of information that do not insult my intelligence but rather help me plan my trip. In a word, I want Curt Thompson's new *Floating and Recreation on Montana Rivers.*

In this book Thompson has recorded the knowledge gained over a lifetime of floating Montana's rivers. When I circulated my copy among a group of boaters, I was surprised by the number who had run into Curt along a river, at a put-in or take-out, or who knew of him by reputation.

I can't say in a review that the author is crazy, but he certainly is driven. He has personally examined (what a great job!) each of the 81 river he writes about. The credibility of the book rests on the credibility of the author—in a word, substantial. One case in point is the South Fork of the Flathead. Hearing rumors the gorge portion of the river was unfloatable, Curt set out to discover for himself. He not only was able to negotiate the "unfloatable gorge," but he went back a week later and did it again to ensure that his first trip wasn't a fluke. Thankfully, he does note, "It really serves no purpose to float the gorge."

Each river entry contains a brief narrative, a map of the river stretch, a hydrograph, and a chart that lists, among other things, the length, dams, waterfalls, skill level, game fish, portages, dangers, and phone numbers for obtaining flow information. Each river chart has the same information in the same order, so cross-referencing is a breeze.

The only downfall of the guide I can find is that the river map is not always on the facing page of the river it is describing, and the map could show access roads in more detail. Though, with a good shuttle map, I'd need a new excuse for some of my recent car shuttles from hell.

The best part of *Floating and Recreation on Montana Rivers* is that it makes such good reading that some armchair river rats will stay couch-bound and leave the rivers to those of us who don't like guide books.—*Doug Monger, Assistant Administrator, Parks Division, Helena*

ECOLOGY AND MANAGEMENT OF THE MOURNING DOVE, compiled by Thomas S. Baskett, Mark W. Sayre, Roy E. Tomlinson, and Ralph E. Mirarchi, Stackpole Books, 5067 Ritter Road, Mechanicsburg, PA 17055; 1993, 567 pages, hard cover, $44.95 plus shipping.

Okay, this book may not be for everyone. It's a scientific work published by the Wildlife Management Institute, a nonprofit organization devoted to proper management of North America's wildlife resources. But the editors have tried hard to make it readable to all who are curious about the dove, be they birdwatchers, hunters, or biologists.

Twenty-nine chapters cover such topics as classification and distribution, migration, nesting, reproductive strategy, feeding habits, population trends, and hunting. Each topic is handled by experts who share knowledge gleaned from years of research. Embellished by nearly 400 photos, 100 tables, and 75 figures, the book is an incredibly comprehensive treatment of a fascinating subject. To help reduce the sting, the publisher has agreed to make it available to *Montana Outdoors* readers—who identify themselves as such—for $39.95 inclusive. As the last word on mourning doves, this book will be an informative, useful, and attractive addition to any avian enthusiast's wildlife library.—*Dave Books*

Bel-Air continued from page 10

the background as they carouseled past.

In the air again, a big male flew his spawning colors of orange, red, and black. After another leap, the line drew slack. I stripped line quickly to test if he had decided to deploy some upstream tactics, but there was nothing. The rise of a moment ago had become the Brown of the Season, then one of the memories of a lifetime.

I turned to see the Bel-Air bouncing in rhythm to Ray's laughter.

"Wasn't he a pistol?"

"How long do you think he was?"

"Hard tellin' with a fish like that. A fella would have to beach it, then pace him off. Doesn't matter anyway, by the time we cross the Bitterroot, that fish will grow six inches, and I am sure we can stretch him another foot before we hit home. And home is where we had better head, because your aunt will be waitin' supper." Ray abdicated his driver's seat and slid to the passenger side. "You had better wheel her home, nephew. I am plumb tuckered out from watching you put the fear of God into that fish."

Afternoon followed us home as we reviewed the day's events: certain yet unusual takes, patterns, near spills, and the immature bald, or was it a golden eagle, that graced us overhead.

All events listed and evaluated, I summed it up. "You were right, Uncle Ray, it was a good day to fish the Big Hole, but I guess the river's not as great as it was in the twenties." I wanted a yarn to be spun down from Ray's private library, but received instead a piece of pioneer philosophy, one I still pull from my hip pocket when life becomes a little mysterious.

"Maybe, maybe not, things get kinda distorted as you grow old. But it makes no difference how it was, or how it's going to be, 'cause right now is all that counts, for right now just might be as good as it's going to get."

Ray was long asleep as we crossed the Bitterroot but, even without his bolstering, my trout grew that predicted six inches. The stretch between Darby and Hamilton was spent alone in a nighttime daydream, scattered occasionally by the glare of headlights, silent except for the duet of Ray's snoring and the Bel-Air's lullaby. ■

THE ONE THAT GOT AWAY

Just finished the March/April issue...excellent.

I read the leading letter by Pat Graham and it sounds like my life. I am a native of the copper city of Butte. We migrated to the Golden State in '67. My heart never left the high country, the rivers, and all the good things like bird hunting and big game hunting, but mostly the fly fishing on the Big Hole River. Go back every summer.

That back cover photo of the creel-filling rainbow by Paul Updike made my heart skip a beat. NOW THAT'S A FISH. My first question would be, what fly did you tie on? Okay, you can lie about it. Actually it matters little; that trout takes a wet or dry for no reason at all.

Last summer, I was fly fishing the Big Hole River near Divide, up where the old power dam used to be, near the old pump station. I hooked a trout as big as the one in the photo. The fish cleared the water by three feet or more. The setting sun danced off his golden body and the fly line appeared like a strand of gold glistening in the Montana sunlight. Oh, how I wished I could have stopped that scene in time forever, for all to see.

At that same time, a boat with a guide and his dude fly fisherman came around the bend. His flyrod in motion, all stopped, boat and all. I kept my trout on for a few leaps more. I guess someone "up there" doesn't like me, because at that moment slick rocks underfoot, the swift water, and the excitement spelled disaster...I fell back, the trout leaped, my graphite pole snapped...HE'S GONE. Wet to my neck, my fine rod in two pieces, my treasured cap with USC on it downstream with my lost rainbow, and the best "lie" ever. The dude with his guide and boat came to shore, grinning from ear to ear. "Too bad I didn't get that on my camcorder," he said, and added, "That show was worth the price I paid to float and flyfish this Big Hole today."

I must tell the readers, that fish was at least six pounds on a four-pound test leader. I will try for that "big guy" again next summer...late August. He should be 10 pounds next year...you dreamer you.

I guess that's why I enjoyed the movie "A River Runs through It." Last summer I fished the Big Blackfoot, it's still a blue ribbon stream, with trout as long as your leg in it.—*Bill Baltezar; Salinas, California*

HIGHLANDS RAM MAGNIFICENT

In the March/April 1993 issue of *Montana Outdoors*, the Highlands ram is suggested to have the largest base measurement on record. Not true. The largest bases on record were taken by W. F. Sheard (18.5 inches) in 1885, J. B. Marvin (18.25 inches) in 1921 and J. E. Knobel (18.25 inches) in 1913. The Sheard ram was taken in British Columbia and the other two came out of Alberta. The Highlands ram then has the largest bases on record in the United States, but they are a bit short of the other three listed in Rowland Ward.

Congratulations to the state of Montana for raising such a magnificent ram.—*Dave Scovill; Wolfe Publishing Company, Prescott, Arizona*

LOONS PROVIDE QUIET MOMENTS

I am a loon lover and a librarian for the Aquatic Research Institute. I simply cannot think of a more beautiful magazine than *Montana Outdoors*—and this month (May/June) the story on the loons by Deborah Richie was wonderful.

I have cassettes and videos on loons—and in the midst of California's mad race for survival I frequently turn to quiet moments to listen to the loons.

The poignant cries, the pattern of black and white, are wilderness itself.

Thank you for such an excellent magazine, the "Wildlife Doc" article, the relationship you have with your beautiful land (...that I have never seen other than through your magazine).—*Verlejean Parker; Hayward, California*

READERS ENJOY MO AND "LAST BEST PLACE"

I've been a subscriber to *Montana Outdoors* for three or four years and have really enjoyed your magazine. I especially enjoy the photo issues. They give non-residents like myself a greater understanding of and appreciation for Montana's scenic beauty and wildlife. Whether traveling through or hunting in your state, I can agree with the saying that Montana is "the last best place."

I would appreciate knowing if you have any of the old photo issues available and for sale (before 1991). If so, let me know which ones as well as postage costs. Thank you.—*Lynn Johnson; Hannaford, North Dakota*

• *All our photo issues are still available (1981 and 1983 through present) for $2 each, postage included.* —Editor

* * * * *

I enjoy your great magazine tremendously. Probably because of its great diversity of technical informative articles in regards to environmental issues affecting fish, animals, and man. Actual firsthand hunting and fishing experiences, in-depth articles on the many animals and fishes of Montana, and the fantastic, awe-inspiring photography. I love your great state and wish (like so many, many others) that I could live there. But, circumstances prevent that, so I have to be content to enjoy Montana through your magazine.—*Francis E. Hill; New Milford, Connecticut*

A Reflection
on black-footed ferrets

by Tom Palmer

When I shut my eyes, I hear far and wide
The air of the Ice Age stirring.
When I open them, a rocket passes over a meteor

—Shinkichi Takahashi, "Quails"

I enter the country in rain to see it at its formless best. A gray morning sun vents an unfamiliar humid heat over Montana's Hi-Line, a place so open and immense the big drift of time and space pulls you close to the heart of lonesome, where it is easy to sense the energy of the past, to believe deeply, seriously in landscape. I'm driving east on U.S. Highway 2. Driving, driving. The Milk River and the old Great Northern railway are always nearby, but mostly remain as invisible as the Canadian border some 50 miles beyond the greening wheat fields that roll over glacial till and fall back to the far north.

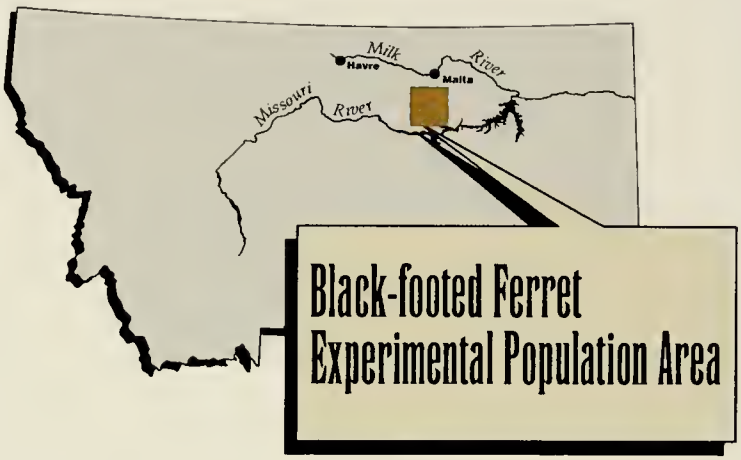
Up ahead a stock hauler rouses a silver mist from the black hardpan asphalt. Spray eddies wildly in the air and all about the truck. Beyond the mist a sad and rusted grain elevator reveals itself. Fence posts tick by.

I touch the radio's electronic search button and a far off modulation wave delivers a voice grousing about certain trouble and the Endangered Species Act. Tired souls of snail darters and spotted owls are lugged out to the pillories. I wonder if it is luck or fate because the black-footed ferret, perhaps the most endangered mammal in the world, brings me into the country.

DEAN BIGGINS

THERE IS NO SAYING how long the black-footed ferret (*Mustela nigripes*) has been gone from Montana's short-grass prairie. Plains Indians once prized the ferret's soft, buff-colored hides for medicine pouches, but early explorers

and naturalists pretty much overlooked the gorgeous animal. Most contemporary descriptions of the black-footed ferret refer to its "weasel-like" appearance, which is a terrible disservice to the black-footed ferret's rarity and beauty. With its enormous paws, stubby black legs, black-tipped tail, piebald head, and a neat charcoal smear for a facemask, the black-footed ferret is no more like a weasel than a black bear is like a panda. Disney could not have concocted a more appealing little animal. One can suspect that because the black-footed ferret roams mostly at night it probably offered only darting glimpses to westering pilgrims. Montana Department of Fish, Wildlife & Parks biologist Ron Stoneberg thinks the ferret has been gone from Montana for at least 15 years, but he says you could build a case to reach back twice as far. Or, he says, you could hold fast, reckoning that there are still black-footed ferrets out there among the cattle and prairie dogs and big sage and greasewood.



WHEN THE CALL is black-footed ferret extinction, bets are hedged because scant populations of black-footed ferrets were discovered in the 1960s and '70s in neighboring South Dakota, and more were found just south in the 1980s in Wyoming. Once probed, however, the ferrets turned mercurial, scattering like quicksilver that no calculus or prayer could stop from spilling into the extinction abyss. "It was frustrating," Conrad Hillman admits. I tracked Hillman down by phone in Bismarck, North Dakota, where he is a regional director for Ducks Unlimited. I wanted to talk to him because he had found ferrets in South Dakota as a graduate student, was later employed by the U.S. Fish and Wildlife Service when the first captive breeding program was attempted, and he was there when no ferrets were left to be found. "When I started looking we didn't know anything about black-footed ferrets. And 15 years later we still didn't know much at all." He paused for some time and in his silence was the terrible burden of having watched a species slip away.

The essence of the black-footed ferret, its true nature, has profoundly confounded the best efforts of science. The most ferrets Hillman ever found in the wild in a single year was 20 animals. Even the famous mother lode discovery of 129 black-footed ferrets in Wyoming in 1981 looked terribly grim by the winter of 1985 when disease and second-guessed decisions left but a few ferrets alive in the barren, windy hills of Meeteetse.

The animal was spilling away again, but researchers in Wyoming were able to gather an extended family of 18 ferrets, a few of which became collectively known as "the founders" of an elaborate captive breeding program. Once whisked into captivity those closely related black-footed ferrets became the last and only hope for the survival of a species we hardly know.

NEXT AUTUMN, Montana will become the second state to reintroduce black-footed ferrets to a postage-stamp portion of a native range that once covered the Great Plains from Canada to Texas and perhaps Mexico. Captive-bred ferrets were successfully released to the wild in 1991 in northern Wyoming's Shirley Basin, success in this case measured by survivors producing and raising young. More ferrets were released there in 1992, and more are to be released this year. "What Wyoming has done is amazing," Stoneberg says. Stoneberg has been preparing eastern Montana for the black-footed ferret's return for more than five years. He lives on the prairie where he and his wife, Rose, the community veterinarian, run a small sheep herd. With his training as a state wildlife biologist and his ranching avocation, Stoneberg balances a curiously mixed life, one that makes him uniquely equipped to appreciate the web of prairie ecology and prairie politics. He speaks in the slow cadence of many people in the rural West, and his voice and expression bear the easy rhythm of thoughtful conviction. "We're moving ahead up here. And we've got some support," he told me shortly before a meeting in Malta, Montana, where a group of landowners gather regularly to keep a watchful eye on this endangered species business.

My notes from that meeting render a recurring theme. *"It's been a part of the whole policy that we've got to have prairie dog control."*

"I don't want that changed."

"If they go to changing it, then I'm a'gin it."

"As landowners, we're not real interested in the black-footed ferret without prairie dog control."

"Most of us are totally dependent on federal grazing. When I work hard to try to build up my range and then see prairie dog towns degrading portions of it, well I gotta bite my lip pretty hard."

Stoneberg later relates the obvious. "The locals really don't want that black-footed ferret out there," he says, "but it's so unique that we can get any support a'tall. I've taken some lumps, but I've taken them to get the black-footed ferret on the ground."

In Montana, ferrets will be released in the extreme southern portion of an "Experimental Population Area," a 4,237-square-mile site that lies between the Milk and Missouri rivers in the dramatic breaks country of southern Phillips and Blaine counties. The area is about the size of Connecticut and holds private lands, state lands, BLM lands, the Fort Belknap Indian Reservation, and a portion of the U.L. Bend/Charles M. Russell National Wildlife Refuge, where the ferrets will be released. The land is thin, but its forms are powerful. It is a desolate place, stained with the blood of

MIKE ADERHOLD

Without wild prairie, there can be no wild, free-ranging black-footed ferrets. Next autumn, ferrets will be released in an Experimental Population Area lying between the Milk and Missouri rivers in southern Phillips and Blaine counties.

Indians and settlers. This is the old open range. Robber barons, cattle barons, and outlaws came through. More than once the federal government coerced settlement by offering free land, then later coaxed resettlement with relocation buyouts and loans. The notion of government-managed range land—"submarginal land," it was called—and the Bureau of Land Management itself emerged from this landscape just six decades ago. But the most important consideration for the black-footed ferret is these high plains offer such great potential for prairie dog habitat that even before ferrets were discovered in Wyoming, the Montana site was marked as the number one black-footed ferret reintroduction site in the world. And for a cattle ranching community taught by the catechism of their history that prairie dogs are vermin, the world again is a changeful place.

IT'S ALL GUESSWORK. We just don't know all we need to know about the black-footed ferret, but what we do know suggests a primitive, overspecialized species as dependent on prairie dogs as photosynthesis is dependent on the sun. The first scientific description of the species was published by John James Audubon and John Bachman in 1851. Audubon died shortly after the account was prepared and the specimen on which the description was based was subsequently lost. More than 100 years later, in Burt and Grossenheider's *A Field Guide to the Mammals*, there is this notation on the black-footed ferret: "Practically nothing is known about this, one of our rarest mammals."

Now, with the benefit of the South Dakota and Wyoming experiences, we can comfortably conclude black-footed ferrets prey almost exclusively on prairie dogs. And, because black-footed ferrets are incapable of digging in any traditional sense—like a badger or even a dog—they take shelter in prairie dog burrows.

Without prairie dogs and wild prairie, there can be no wild, free-ranging black-footed ferrets. One would think that after a several-thousand-year predator-prey relationship prairie dogs and black-footed ferrets would be mortal enemies, but some evidence suggests prairie dogs and ferrets coexist quite amicably on the prairie. Prairie dogs have been seen peevishly harrying black-footed ferrets away from familial burrows, and ferrets walking within inches of prairie dogs sometimes have shown little interest in them.

At least above ground when the sun's up.

Tim Clark, a conservation biologist and long-time ferret researcher from Jackson, Wyoming, thinks the behavior of prairie

dogs indicates they haven't been attacked in daylight frequently enough to have evolved a fear of ferrets. Ferrets roam in the wee hours of the night, when golden eagles and ferruginous hawks are in the roost, and not looking for an easy grab off the prairie. Clark and others, including Dean Biggins, the U.S. Fish and Wildlife Service research biologist who will oversee and evaluate experimental release strategies in Montana, further believe ferrets roam at night because sleeping prairie dogs may settle into a mild, metabolic torpor in the cool temperatures of their burrows. All of this suggests that, like other members of the family Mustelidae, black-footed ferrets have adapted to be most active at the time when their prey are most vulnerable.

In the order Carnivora, the family Mustelidae consists of a moderately diverse group of animals, varying in size from the large sea otter (*Enhydra lutris*), weighing 55 pounds or more, to the smallest carnivore, the least weasel, (*Mustela nivalis*), which weighs about the same as a small plum. The black-footed ferret falls somewhere below the middle of the family. It's smaller than a marten, but at a length of about 2 feet and a weight of 2.5 pounds, it's larger than a mink. In one sense, the deceptive bulk of the black-footed ferret's sleek body has caused some of its difficulty. The typical Montana ground squirrel—say Richardson's—appears to offer everything black-footed ferrets need to survive—abundant prey and subterranean shelter—but to the ferret's great misfortune it is too much the specialist. The ground squirrel's burrow is just too tight a squeeze for the black-footed ferret. Yet, because mustelids range from the Arctic tundra to the tropical rain forest, mammalogists believe no other carnivore family shows such a diversity of adaptive types. So why is the black-footed ferret the only ferret native to North America, and why has it overspecialized?

No one really knows. The black-footed ferret and its closest relative, the Siberian polecat (*M. eversmanni*), last shared a common ancestor 500,000 to 2 million years ago. About 100,000 years ago, in the midst of the Ice Age, the Siberian polecat stayed in Asia where it now lives in a variety of rodent burrows and preys upon pikas, ground squirrels, voles, hamsters, and marmots. Meanwhile, the black-footed ferret wandered through ice-free corridors to the Great Plains of North America. It's likely the black-footed ferret extended its range at a rate of about 500 miles a century, so it could have moseyed into Montana about 600 years after crossing the Bering Strait land bridge and perhaps 90,000 years before any *Homo sapiens* scratched a glyph on Montana sandstone.

Here on the North American prairie, in the flatland, the dryland, the black-footed ferret adapted to an absolute existence, one unique among the family Mustelidae. Until about 1920—the onset of the ardent 20-year prairie dog eradication campaign and the continuation of many other developments that have virtually wiped out the U.S. prairie and 90% to 97% of its prairie dog towns—perhaps 800,000 black-footed ferrets occupied more than 100 million acres scattered over 12 Great Plains and Rocky Mountain states and two Canadian provinces. Some of today's black-footed ferret researchers are now suggesting that even under these ideal conditions, the ferret may have struggled to survive.

Black-footed ferrets appear to be predisposed to live in small "metapopulations" where inbreeding is common. They are very susceptible to disease—especially canine distemper—have a mean life expectancy of less than a year, breed as yearlings, produce one small litter a year—about three kits—and have a number of extremely effective enemies. Badgers, owls, hawks, and golden eagles hunt, kill, and eat

Black-footed ferrets prey almost exclusively on prairie dogs (below) and rely on prairie dog burrows for shelter.

MIKE ADERHOLD

black-footed ferrets. But the ubiquitous coyote might be the ferret's most dangerous foe. One coyote can transmit canine distemper to one ferret and quickly wipe out an entire ferret population. And coyotes simply kill black-footed ferrets. There is no caloric exchange, no food-chain link in the killing. Coyotes rip out a ferret's stomach and leave the carcass for other prairie scavengers, as if the ferret summoned within the coyote a call for swift retribution.

This is not the strongest text on which to build a life history, and yet these are some attributes common in all mustelid species, a family that closely represents the most primitive carnivore stock. But other mustelids have diversified. Marten, though rare, are found in fir, spruce, and hemlock forests where they eat a variety of small mammals and even insects, birds, fruits, and nuts. River otters are found along rivers and lakes, but they'll travel over land, and they eat fish, frogs, crayfish, and aquatic insects. Only the black-footed ferret is locked into one habitat, fixed on one prey.

"WHEN YOU look at everything collectively, you wonder about the black-footed ferret," Dean Biggins tells me. We're at Sand Creek on the Charles M. Russell National Wildlife Refuge, about 40 miles east, but nearly a two-hour drive away from the spot where ferrets will be released next autumn. The CMR is the largest national wildlife refuge in the contiguous United States. Windswept glaciated plains, shallow valleys, remnants of the open range, weathered bedrock, wide floodplains, and erodible soils have created a mythic topography here. A place for all manner of wildlife. Much of the public land along the Missouri River holds what remains of the best and largest blocks of native prairie in the region. The plains grizzly bear, American bison, Audubon bighorn sheep, and wolves were common here, but no more. Paleontologists digging in the Cretaceous' Hell Creek formations have made historic discoveries nearby. The hundred-mile view from Sand Creek, all sky, grassland, and blue sage, is made for such reflections. "Was the black-footed ferret in the 1850s the same animal it is now?" Biggins wonders aloud. He's a compact man, thick-set, dark complected, and seldom prone to easy conversation about his work. "You wonder if black-footed ferrets weren't going downhill before anyone studied them. I don't like to dwell on that, but we're not dealing with a sure thing at all."

Only the black-footed ferret is locked into one habitat, fixed on one prey.

Among black-footed ferret insiders, Biggins is best known for his work with radio telemetry, an aspect of black-footed ferret recovery that has provoked some controversy. It's a controversy that runs deep in all wildlife programs and stems from the notion that radio collars can influence behaviors and perhaps inhibit an animal's ability to survive. Nonetheless, Biggins' work has shown that newly released black-footed ferrets tend to disperse farther and faster than anyone suspected. His work also contributed to some of Wyoming's success. One of the two females that produced young in 1992 was a radio-collared ferret brought back into captivity and nursed to health after being attacked by a golden eagle.

In 1988 Biggins began to research reintroduction techniques by examining the behaviors of captively bred black-footed ferrets and the black-footed ferret's closest relative, the Siberian polecat. "Polecat" is the Old World expression for ferret. Etymologically, "polecat" is derivative of the Middle French *poul*, or cock, and the Middle English *cat*, and likely alludes to an insatiable taste for domestic poultry among night-roaming weasels.

Anyway, Biggins acquired wild-caught Siberian polecats. He immediately found the polecats to be more physically fit than third and fourth generation captive black-footed ferrets, which were—and still are—turning up with crooked tails, missing teeth, tumors, and other genetic anomalies.

Obvious deformities notwithstanding, if the black-footed ferret is to ever again be self-reliant and wild, the captive-raised animals must learn to hunt prairie dogs and avoid becoming predator meat while on the hunt. It's a splendidly simple notion, but to reinvent its wild suchness, once on the ground in the wild a black-footed ferret must venture out to explore the new world, to come to know an area large enough to keep its belly full. To gather and store that kind of knowledge, to essentially shore up and repair ancient instincts, the black-footed ferret must expose itself to that which will kill it. Recognition. Fear. Fight or flight. The chase. In the best-equipped ferrets atavistic chemicals will stir, dulled synapses will fire anew to awaken primitive secrets of survival. Awakened ferrets will never again dawdle aimlessly on the prairie but come to dart and sprint with certain stealth. They will hunt and hide purposefully, and soon move on because they will know too long a stay in one burrow would uncomplicate a badger's existence and imperil its own.

The question is, how much of the ferret's true nature has been lost and can it ever be recovered? To help develop answers, Biggins set out with researcher Brian Miller to test the black-footed ferret's response to earthbound and avian predators by creating a kind of black-footed ferret theme park complete with real prairie dogs and prairie dog burrows. In Pueblo, Colorado, the facility is equipped with a mechanical owl that swoops over the indoor prairie as if to grab an idle ferret. Researchers have also created a remote-control badger capable of chasing and wheeling up on ferrets. Trust me, if caught unaware when these odd toys are loosed your blood would stir and your heart would pound beneath a savage breast.

When confronted by the mechanical great horned owl, the polecat tended to dart to its burrow and stay down for at least two hours. The same stimulus elicited far more casual responses in black-footed ferrets. To the researchers' dismay, ferrets took little offense at the phony transgressions, and if one actually retreated to a burrow, it tended to stay down for only a few minutes. "It's easy to envision the problems," Biggins says. "Is it genetic? Is it environmental? I don't know, but I can't imagine, in an environmental sense, why something like that should happen."

DEAN BIGGINS

DEAN BIGGINS

Captive-raised ferrets must learn to hunt and avoid predators if they are to survive in the wild. In a Pueblo, Colorado, facility, a mechanical owl and a remote-controlled badger test the response of ferrets to avian and earth-bound predators.

In other words, the inbreeding of black-footed ferrets has become a serious concern. Most of the history of the Meeteetse population suggests it may have been isolated for 50 to 60 years before its discovery in 1981. With at least a half-century of inbreeding behind it, the black-footed ferret could have already lost most of its genetic diversity. This problem is compounded by the fact that the 18 ferrets captured can't be considered clean "founders."

In the captive breeding game, founders are ideally unrelated animals. Most of the Wyoming ferrets were clearly close relatives. To further assure the captive stock is a good genetic representation of the wild population, as if climbing aboard the ark, founders are expected to come in 10 to 20 male/female pairs. In Wyoming, workers randomly and frantically captured 10 females and eight males over a five-month period.

The unfortunate situation in Wyoming demanded a desperate roundup of the last black-footed ferrets on earth. When genetic numbers were crunched, founders were realistically reduced to no more than eight ferrets. Then geneticists constructed an evolutionary tree to examine chromosome architecture and appraise the countervailing strength of the ferret's natural selection building blocks. All the numbers, graphs, trusted algorithms, and computer programs coughed out despair. Only one other carnivore species has ever shown lower genetic variation values than the black-footed ferret. That animal is the South African cheetah, but with some 12,000 cheetahs in the wild, the cheetah's precarious numbers still dwarf the sum of all living black-footed ferrets, which now number about 400 animals in seven high-tech, antiseptic, disease-free captive-breeding facilities. Send the black-footed ferret numbers through the computers again, run extinction program models and the results vary but suggest that without regular and active manipulations, the ultimate effect of the black-footed ferret's genetic drift would doom it to extinction in fewer than 100 years.

But if the ferret's genetic situation is bleak, it is not quite hopeless. Biggins hopes the black-footed ferret can learn to survive in the wild. He suggests the right stimuli applied at the right age can spur the ferret on to learn what it needs to learn quite early in its captive life. Once released to the wild, a ferret is considered a survivor after 30 days. The 30-day milestone implies a ferret has learned to hunt and avoid being killed in the process.

If there is any question, look toward Wyoming.

"What has happened here has made me very optimistic that we can recover the black-footed ferret," said Dr. Tom Thorne, a veterinarian with the Wyoming Game and Fish Department who is responsible for a major portion of the black-footed ferret's captive-breeding program. "Reintroduction will work. We can turn them loose. Inbreeding is probably our biggest concern, but we're doing everything we can. If we can't overcome the problem, the problem can't be overcome."

And, yes, it's not an idea anyone working on the recovery of the black-footed ferret likes to dwell on. "I'm very grateful we have *some* animals," Biggins says. He stops short of saying he feels a personal responsibility to save the black-footed ferret, having been on the front lines during the near-disaster in Wyoming, but it doesn't take much to read between the lines. "I'm thankful the captive breeding program has worked as well as it has, but I'll feel a lot better when we get some more of these animals out living in the wild."

WHAT IS the wild now? What will the wild become? Poet Gary Snyder writes in *The Practice of the Wild* that "American society (like any other) has

its own set of unquestioned assumptions. It still maintains a largely uncritical faith in the notion of continually unfolding progress. It cleaves to the idea that there can be unblemished scientific objectivity. And most fundamentally it operates under the delusion that we are each a kind of 'solitary knower'—that we exist as rootless intelligences without layers of localized contexts."

What I think Snyder is telling us is science and the wild and our lives are rooted to a home place. Solutions for wild things and wild places are local and subjective and peopled.

I remember a bright, hot spring day on the Montana prairie that followed days of cool, driving rain. The prairie had erupted in grand shades of green and the big sage shimmered in purple. Prairie dogs called from burrow to burrow. Piping plovers scurried about the glacial scree, and burrowing owls flew off low to light softly and bob as buoys on swelling waters, while curlews pecked the hardscrabble for insects with their thin, sickled beaks.

Kenny Blunt, one of several local ranchers who live and run cattle within the black-footed ferret's experimental population area, stopped to noon with visitors who had come to discuss Montana's black-footed ferret recovery program. "You could bring the black-footed ferret tomorrow and say you weren't going to impact the way I did anything, and I'd say bring them," Blunt said, stooping on his haunches like an aborigine to peel plastic wrap away from a roast beef sandwich. "Drop them right out on my private land. I wouldn't care. I have nothing against the ferret. If he caught on, it would be fine with me. If you come the next day and say I can't do this or that on my place because the ferret's out there, that's the fear I see. There are things down the road nobody has even thought of yet that could happen. Most of the landowners are very cautious and maybe a little pessimistic that things aren't going to work the way they're supposed to."

Now look a world away to southern Africa where the cheetah is the black-footed ferret's endangered soulmate. The cheetah is dramatically overspecialized for terrific bursts of speed, for the short chase, and has become, ironically, easy prey for larger, stronger predators. Inbreeding has robbed the cheetah of the natural selection building blocks it needs to assure breeding fertility and to protect it against disease. And the farmers, the landowners, view the cheetah as livestock-killing vermin. But those devoted to saving the cheetah now believe the cat's best hope for survival is farms, not parks and reserves. For the cheetah, preservation efforts combine the rootlessness of objective science with a tight focus on place and people.

The fate of the black-footed ferret was set in motion in the deep past, in a world that has rushed away but whose landforms still persist. The ruins of progress persist as well. Abandoned homesteads, railroads, schools. These are among the icons of Western rangeland promises and policy.

Gone are all those days, yet we live under the spell of the unbroken legacy of our history, believing in notions of progress time cannot erase. As the ferret's technological destiny is mapped out in sterile laboratories, its survival in the wild will ultimately depend on a peopled landscape, on what is here and who is here. Oh, these hundred-mile views. Think about what it means to relearn how to survive here. Is the black-footed ferret the same animal it was in the 1850s? Are we? ■

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SUPPORT

Grayling Recovery

Missoula artist Monte Dolack has produced this stunning poster to help raise money for stream-dwelling Arctic grayling recovery efforts. Known for his award-winning posters and fine art, Dolack is dedicated to fish and wildlife conservation. The 24 X 31.5 - inch poster captures not only the beauty of these Montana natives, but the feel of the Big Hole River, their last stronghold in Montana.

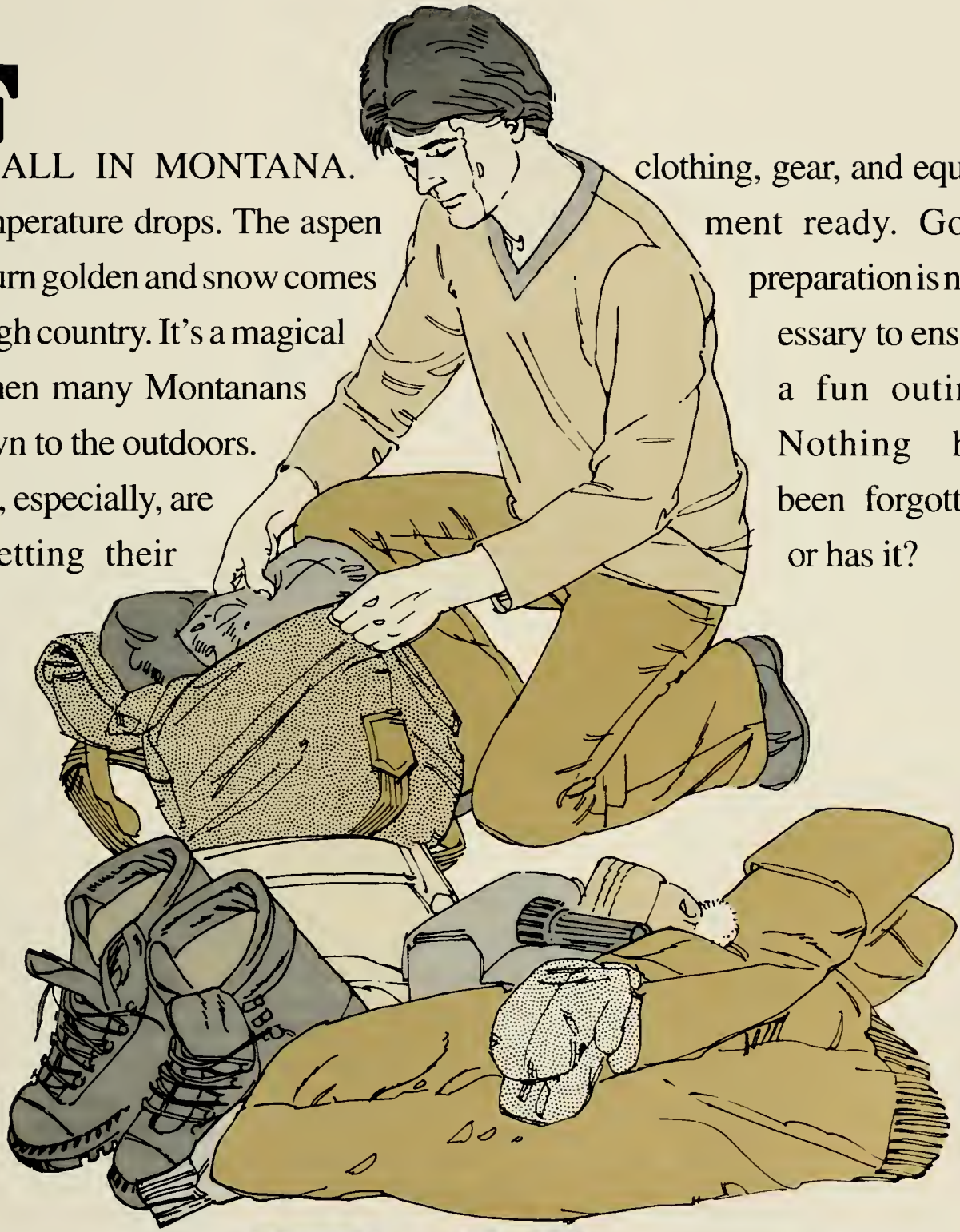
The recovery is a joint effort by the Montana Department of Fish, Wildlife & Parks, U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, Montana Council of Trout Unlimited, and Montana Chapter of the American Fisheries Society. The cooperators hope that with sufficient progress toward recovery, listing of the grayling as an endangered species will not be necessary.

Unsigned posters are available for $30, plus $7.50 shipping and handling. A few signed copies are still available for $75, plus $7.50 shipping and handling.

For further information about grayling recovery, write the Arctic Grayling Recovery Program, P.O. Box 4089, Bozeman, MT 59772.

Monte Dolack

To order your copy of the poster please call 1-800-775-3244.



SURVIVAL TIPS

FALL IN MONTANA. The temperature drops. The aspen leaves turn golden and snow comes to the high country. It's a magical time when many Montanans are drawn to the outdoors. Hunters, especially, are busy getting their clothing, gear, and equipment ready. Good preparation is necessary to ensure a fun outing. Nothing has been forgotten, or has it?

by Tom Daniels

Unfortunately, one very important subject is often ignored. The subject is *survival.* Staying alive and well in the backcountry is no accident. Survival takes forethought and preparation.

As a professional survival consultant, my motto is this: "The best way to survive an emergency situation is not to get into one." Therefore, I have eight survival tips that I recommend if you are venturing out this fall. These basic bits of advice will help you avoid trouble or, if all else fails, survive it.

GET IN SHAPE

Every year some people get into trouble because they fail to get into shape before heading afield. Others have problems because they push themselves beyond their physical limits. Hunting in Montana can be very strenuous. Lugging a rifle and other assorted gear over steep ridges and through deep ravines can lead to exhaustion or injury if your body is not accustomed to such activity.

The time to start getting ready for hunting season is months in advance of opening day. It's best to stay in shape all year, but a good exercise program followed faithfully for six to eight weeks before you head afield will help considerably. Your program should combine aerobic activity for endurance and weight training for strength. Fast walking, jogging, or swimming for 20 to 30 minutes at a time, three to five times a week, should be enough to get your heart and lungs into shape if you are basically healthy. Working with weights two or three times a week for the same period will build adequate body strength. However, before you begin any exercise program, see your doctor and get a complete physical. Ask his or her advice in developing the best workout plan for you.

PLAN CAREFULLY AND TAKE EXTRA SUPPLIES

The importance of planning your trip to the last detail cannot be overstated. Nothing can ruin an outing faster than needing something in the field and not having it with you. This can be frustrating on a minor level and life-threatening on a larger scale. At best, forgetting your knife will leave you without a means of field dressing your game. A friend who works for the Department of Fish, Wildlife & Parks told me about coming upon a hunter last fall who had his deer but had forgotten his knife. My friend generously took the time to help him out. Good planning would have prevented such an incident. I always carry three knives with me: a pocket knife in my pants, a folding knife in my pack, and a sheath knife on my belt. If I someday forget one, I'll still have the other two.

Although you can survive an embarrassing mistake like forgetting your knife, you may not survive a more serious mistake like forgetting your raingear. Every year the newspapers carry stories of recreationists, adults as well as teenagers, who get into trouble. Many become lost and some perish because they don't have the proper clothes to survive bad weather or enough food to last several days beyond what they planned to spend in the field. Even a one-day outing requires a lot of planning to ensure it is safe and fun instead of disappointing or disastrous.

Make a list of the gear and supplies you'll need for your outing a week or so in advance. Review the list carefully and ask yourself if it covers every reasonable scenario you might encounter, from getting lost to spraining an ankle or cutting yourself. Have you included extra food, water purification tablets, fire-starting materials, extra clothes, shelter material, signaling devices, compass and map, knives, and other related gear? If you consider and act on these questions at home, chances are good you will stay safe and well in the field, even if a problem occurs.

TELL SOMEONE YOUR PLANS AND DON'T CHANGE THEM

Getting lost endangers the lives of hunters and hikers every year. Most are found within 72 hours if they took the precaution of letting someone know where they were going and when to expect them home. People who fail to notify anyone of their destination or plans are in danger. Their absence may not be discovered for some time, and no one will know where to start looking when they do turn up missing.

There are two ways to make sure this doesn't happen to you. First, simply tell your spouse or a friend of your plans. Be as specific as you can. For example, "I'll be hunting to the north side of Forest Road 4151 in the Helena National Forest near York. I should be home no more than two hours after dark." Making a sketch to accompany the verbal information is even better. Such a description will help authorities know where to start searching if you fail to come home.

Also, it is wise to leave a written note with the same information under the wiper blade of your vehicle. This way a passerby who notices your vehicle parked for an unusually long time may discover the note and call for help. Another important point is that you must stick with your original plan. It does no good to follow these steps and then change your mind after you've left home.

ALWAYS CARRY A SURVIVAL KIT

Many recreationists buy a commercially produced survival kit or assemble one of their own. The problem comes when they fail to carry it into the field. Some simply forget the kit, while others think they won't be out long enough to need it, or simply opt not to carry it because it is heavy or cumbersome. A survival kit left at home or in the pickup can't help you when you need it. Carry it with you at all times, and know how to use the materials it contains.

I recommend keeping your survival kit simple and limited. This will ensure the kit is small and light enough that you will always be inclined to carry it. Include the basics for starting a fire, making shelter, signaling rescuers, and administering first aid.

Include at least two types of fire starters, such as strike-anywhere, waterproof kitchen matches and a cigarette lighter. Don't depend on ordinary book matches—they are practically useless under field conditions. Also include tinder that will catch and hold a flame, preferably even when wet. My favorite is a commercially produced package of "fire sticks" made of compressed sawdust. Other fire starters include a paste you can squeeze from a tube and oil-based tabs that come with a piece of flint and steel. A small space blanket, plastic tube tent, or poncho and string can provide emergency shelter. A plastic whistle and signaling mirror will help searchers locate you. Don't forget basic first-aid materials like band-aids, antiseptic, aspirin, and insect repellent.

Carry other items in your kit you feel strongly about, but try to avoid loading

yourself down with things like fish hooks, tackle, and wire animal snares. Although these may sound useful, they usually are necessary only under long-term survival conditions, and such incidents are rare.

LEARN BASIC MAP AND COMPASS SKILLS

This statement is as familiar to most outdoorsmen as "be sure to brush your teeth" is to children. Both are good advice but for some reason both are usually greeted with a "Do I have to?" sort of reaction. The answer is yes, since it is necessary to have basic map-reading skills to avoid becoming lost in unfamiliar territory. No one has a built-in sense of direction, despite claims to the contrary. People who have hunted or hiked a particular area all their lives may think they have a built-in sense of direction, but in reality they simply have an intimate knowledge of that one area.

An intensive map and compass course can take weeks. It is not within the scope of this article to teach such skills. However, you can learn the basics by studying books or literature on the subject (see sidebar). At minimum, you should learn how to orient your map and compass with your physical location. You should become familiar with the different types of maps, such as U.S. Forest Service maps, BLM maps, and USGS topographical maps. You should also learn how to read contour lines and interpret map symbols.

PAY ATTENTION TO YOUR SURROUNDINGS AND THE WEATHER

Even without a map or compass you can usually avoid becoming lost in the mountains if you pay close attention to your surroundings. Pick out prominent landmarks as you walk and make a mental note of them. Stop often and look at your back trail. Things look different from the opposite direction. On clear days notice where the sun is when you start out. If it is over your right shoulder heading out, it should be over your left shoulder returning (be sure to allow for the sun's normal movement from east to west as the day progresses). Keep track of your time. That way, if you start out in the morning and walk for one hour across three ridges, with the sun to your right, then you can safely return to your starting point by walking with the sun to your left across three ridges for one hour.

Pay attention to the weather. It can change quickly, especially in the mountains. What began as a clear, cool morning can turn into a windy, cold, wet afternoon. One June day I experienced rain, snow, sleet, wind, and sun all in one morning while backpacking. If you don't keep a close eye on the sky and weather conditions, a rain or snow shower can be on you before you have time to put on your raingear or seek shelter. This could leave you chilled and vulnerable to hypothermia.

UNDERSTAND HYPOTHERMIA AND LEARN FIRST AID

Hypothermia is the severe loss of heat from the body's core. It is brought on by wind, cold, wetness, and fatigue. Hypothermia is potentially fatal if not recognized and quickly treated. Contrary to popular belief, it does not take freezing temperatures for hypothermia to occur. It is possible even in mild temperatures, with the right combination of wind and moisture, for someone to become hypothermic. Moisture doesn't have to be in the form of rain or snow. It can be perspiration that is not properly vented through one's clothing. Symptoms usually include shivering, paleness, irrationality, confusion, clumsiness and, in the extreme, coma followed by death.

The treatment is simple. Get the victim under shelter and into dry clothes, a blanket, or sleeping bag as fast as possible and rewarmed from a heat source like fire, heater, hot food or drink, or heat from another person's body. Make sure the person rests until recovery is complete. Before heading into the field, read some books from the library on outdoor medicine and first aid and perhaps take a basic first aid course from your local Red Cross.

DON'T PANIC—HARMONIZE WITH THE SITUATION

If an emergency does occur in the backcountry, fear will be a major ingredient in the situation. This is true for everyone. The key is to quickly recognize your fear, accept it as normal under the circumstances, and try to stay calm. Fear causes panic, and panic almost always leads to negative outcomes. As soon as you've calmed yourself as best you can, sit down where you are and decide on the best course of action. If you are lost but left word of where you were going, relax and stay put. Searchers will come looking for you within hours. Build a fire, make yourself comfortable, and prepare to signal rescuers.

Whatever the circumstances, try to harmonize with the situation. Don't waste energy blaming yourself or nature for what happened. Don't feel guilty. Deal with the events as best you can and keep your chin up. Maintaining a positive mental attitude is extremely important in coping with being lost.

These basic survival rules will help you stay safe and well on your fall outings. Remember, however, they are just the tip of the survival information iceberg. There is much more to learn about specific survival skills, such as fire building, layering of clothes, shelter construction, finding and identifying wild plant foods, and improvising tools. Read as much as you can about survival and practice your skills as often as possible in a safe environment. Take a course from a reputable school if possible, and remember to always keep survival awareness in the back of your mind and survival gear in your pack whenever you head outdoors. ■

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Contributors

As FW&P wildlife biologist in Libby for almost 20 years, **Jerry Brown** has a special stake in the Kootenai Falls Wildlife Management Area (page 2). In the 1970s and 1980s he negotiated purchase of the parcels that now make up this popular area along the Kootenai

Brown

River. While the primary purpose of the WMA is to provide habitat for bighorn sheep, deer, bear, and other wildlife, says Brown, it's a favorite destination of hikers, joggers, mountain bikers, horseback riders, photographers, birdwatchers, and fishermen as well.

Scott Waldie has fished all over the world, but his favorite river is still southwestern Montana's Big Hole. As you'll discover when you read his story beginning on page 7, it has to do with more than the river's fertile waters and legendary brown trout. It has to do with family, tradition, the evolution of a fly fisherman, and happiness. Waldie lives in Twin Bridges, Montana, where he and his wife Jane operate the Four Rivers Fishing Company, a fly shop and guide service specializing in trout fishing. He can be reached by writing Four Rivers Fishing Company, Drawer C, Twin Bridges, MT 59754, or by calling (406) 684-5651. Waldie's story is accompanied by the colorful artwork of Bozeman artist **Lee Stroncek**, who works from his home/studio at 818 South Black, Bozeman, MT 59715.

There is no saying how long black-footed ferrets have been gone from Montana's short-grass prairie. But soon they'll be back, thanks to biologists who have spent the last decade trying to halt the ferret's slide toward extinction. Next fall, says **Tom Palmer**, ferrets raised in a captive breeding program will be reintroduced to a portion of north-central Montana lying between the Milk and Missouri rivers. Turn to page 15 for Palmer's intriguing account of last-ditch efforts to restore this unique member of the weasel family. Palmer is an information officer at FW&P headquarters in Helena.

Palmer

If you're headed for the backcountry this autumn, you've probably given plenty of thought to clothing, gear, and equipment. But according to Helena-based journalist and survival consultant **Tom Daniels**, one thing is all too often overlooked: *survival*. As he says in his article beginning on page 23, "the best way to survive an emergency situation is not to get into one," and offers eight survival tips for hunters and hikers venturing out this fall.

Have you ever wondered about the age of game birds you've bagged? FW&P biologists examine upland game birds taken by hunters each fall to help gauge the success of the previous spring's hatch. By following the instructions in **Bruce Auchly's** article (page 27), you can easily age your own birds. Auchly is the department's information officer in Region 4 (Great Falls).

Murphy

The bushy-tailed woodrat "resembles a cross between a deer mouse and a red squirrel: onyx eyes as round as marbles, buff-colored fur, pink feet, and fluffy tail." But unless one nests in your basement and pokes its head into your kitchen on occasion, as one did in author **Alexandra Murphy's** house, you won't often see one. Woodrats are more closely related to deer mice, lemmings, and voles than to Norway rats, says Murphy, who holds a master's degree in environmental studies from the University of Montana. To learn more about the bushy-tailed woodrat and its eclectic collecting habits, turn to the latest installment in our "Watchable Wildlife" series on page 30.

Although the motivations for hunting may seem self-evident to most sportsmen and women, they are less clear to the non-hunting public. Last summer Montana hosted the "Governor's Symposium on North America's Hunting Heritage," an international conference designed to promote a renewed understanding of hunting and wildlife management. Among those invited to speak was **John Madson**, an award-winning author and former Assistant Director of Conservation for the Winchester-Western Division of Olin Corporation. His thought-provoking essay entitled "Why Men Hunt" is reprinted here beginning on page 34.

Madson

MO thanks the following photographers and artists for their contributions to this issue: **Michael J. Barlow** and **Lee Stroncek**, Bozeman; **Dave Bennett** and **Jan Wassink**, Kalispell; **Dean Biggins**, Fort Collins, Colorado; **Dave McGee** and **Rodney Schlecht**, Great Falls; and **John Robinson**, Helena. Thanks also to the following contributors who work for the department: **Mike Aderhold**, Great Falls; and **Tom Warren**, Helena.

How Old is that Bird?

by Bruce Auchly

DAVE BOOKS

Whether biologist, hunter, or naturalist, many people want to know how old an animal is. Although an animal doesn't have a driver's license or birth certificate, it is not that difficult to determine its age.

Deer are aged by the wear on their teeth. Fish scales have annual growth rings, similar to a tree. Likewise, a bear puts layers of "dentine" on its teeth each year. What about birds? They don't have teeth or scales. Yes, but they do have feathers.

Each September, Department of Fish, Wildlife & Parks (FW&P) biologists set up check stations around the state to examine upland game birds shot by hunters.

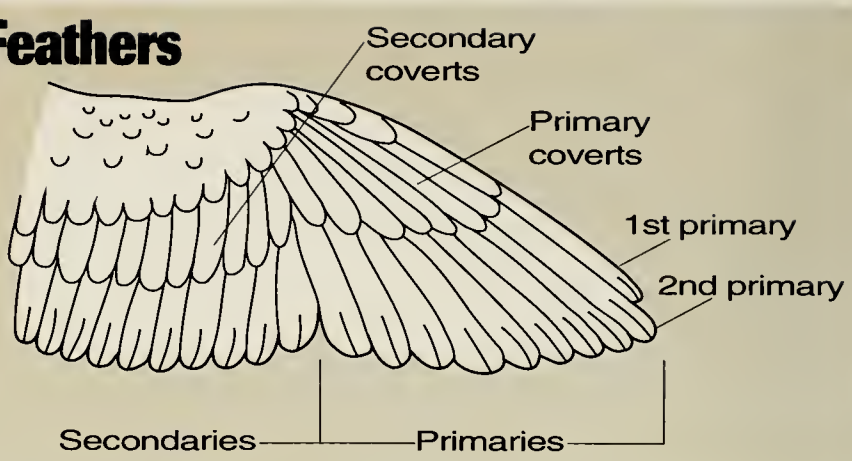
"It allows us to get an indication of how successful the spring hatch was," says Frank Feist, biologist in Region Four, north-central Montana.

Besides noting the number of hunters, hours hunted, and types of birds taken, Feist and other biologists age the birds killed. Upland birds fall into two categories when it comes to aging: (1) grouse and partridge, and (2) ring-necked pheasants. The grouse and partridge category is further divided into mountain and prairie groups.

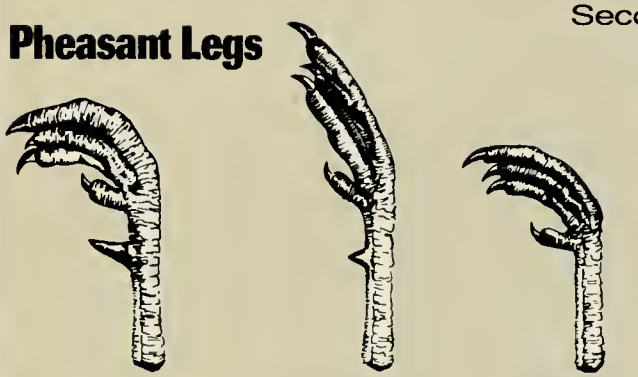
Montana's mountain grouse consist of blue, ruffed, and spruce (Franklin) grouse. Hungarian (gray) partridge, chukar partridge, sharp-tailed grouse, and sage grouse make up the prairie birds. Hungarian and chukar partridge are introduced, as are pheasants. The others are native.

Each game bird has 10 primary feathers on its wings (see diagram). The primary feathers are those on the outer edge of the wing, the longest

Wing Feathers



Pheasant Legs



feathers. For Montana's grouse, the primary feathers can be used to age birds. That's not the case with pheasants.

Pheasants molt (shed and regrow) all 10 primaries each year. By the time pheasant season opens, usually in mid-October, most of the birds have finished molting, making it difficult to tell juveniles from adults.

Instead, the birds are aged by the length of the spur on the leg and the lower jaw (mandible). In Montana, only male (cock) pheasants may be hunted, and only males grow spurs. On a juvenile pheasant, a bird in its first year of life, the spur is little more than a nub. The spur grows longer and sharper as the bird becomes older.

Also on young pheasants, the mandible bends easily. An adult bird has a stiff mandible. In fact, by holding onto the lower mandible of an adult pheasant, a person can support the entire weight of the bird. Pheasants are only aged in two groups, juvenile and adult.

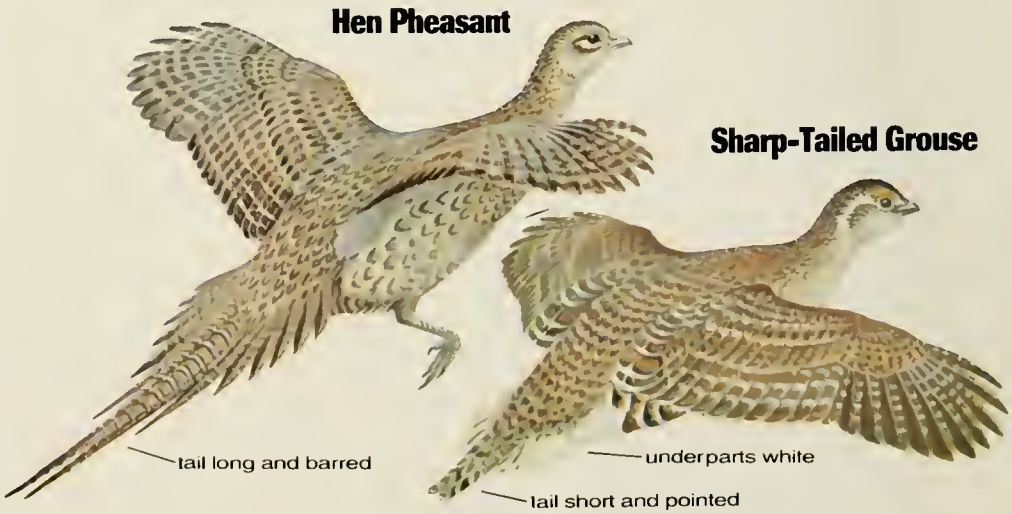
Grouse and partridge also have 10 primary feathers, yet keep the outer one or two feathers through their first winter. When the grouse season opens in early September, most birds entering their second year have not finished molting. They still have their outer juvenile primary feathers. These feathers, near the front of the wing, do not molt until late September or October. Because hunters take the majority of grouse in September, nature's timetable conveniently allows biologists at check stations to divide grouse into three age groups: juvenile, yearling, and adult (opposite page).

On a juvenile grouse, the first two primaries have nearly pointed tips and the colors, especially any mottling, are distinct. By the bird's second fall, the tips have become battered and frayed, and the sun has bleached out much of the color. After the bird molts in the fall of its second year, the new feathers grow in with rounded tips and very little mottling.

Both sexes of all Montana's upland game birds except pheasants may be hunted. The difference in coloration between male and female grouse, though not as obvious as in pheasants, varies according to the species.

Blue grouse are the most diverse, with the male having slate-colored upper parts and the female more brown. Spruce grouse males have a scarlet stripe above the eye and a well-defined black breast patch. Female spruce grouse look similar to female blue grouse except the spruce female has white underparts with dark barring. Female blues have grayish underparts.

In ruffed grouse and sharp-tailed grouse the sexes look very much alike. The biggest concern with sharptails is they can be confused with female pheasants by novice hunters. But with a little practice, hunters can immediately recognize sharptails with their shorter tail, whitish belly, and chunky appearance. Sharptails also utter a distinctive *cuk-cuk-cuk-cuk* when they take flight.



Adult hen pheasants and immature birds have long, barred tail feathers and are a dull brown all over.

Male and female Hungarian partridge look much alike, as do male and female chukar partridge. Because of the limited range of chukars in Montana (primarily the Pryor Mountains in the south-central part of the state), few hunters ever encounter one.

There is one other native upland game bird in Montana, the mourning dove. Mourning doves are a relatively recent addition to the hunting scene. They became legal game birds in 1983. These migratory, swift-flying gray birds can be aged, but differently from grouse.

"It's fairly easy to age big adult birds or young juvenile birds," says Jeff Herbert, FW&P statewide waterfowl coordinator in Helena.

Problems arise from a dove's habit of raising two sets (clutches) of young. The first clutch may look like adults by September, though they are still juveniles.

The youngest birds, from the second clutch, will have white-tipped primary coverts. Covert feathers (see diagram) are the smaller feathers near the top of the wing. Adult doves will have coverts that are uniformly gray.

Big juveniles, those from the first clutch of the year, also may have gray coverts. However, the covert feathers are molted before the primaries. That means a juvenile dove with gray coverts will still have white tips on its ninth and tenth primary feathers.

By the way, Herbert recommends a new and excellent book on doves published by the Wildlife Management Institute, *The Ecology and Management of the Mourning Dove*.

One thing is for sure, if you take the time to age the upland birds you shoot in the fall, you'll never again look at the birds the same. Once proficient at aging birds, you can follow the population trends of upland game birds in your favorite hunting spot.

Mostly adults and few juvenile birds in the bag may indicate a poor nesting season for game birds, while mostly juveniles and few adults indicate a good production year. Matching habitat changes and spring weather patterns with aging data will provide further insights.

After all, an informed hunter is a conservationist. ■

Sage Grouse Primary Wing Feathers

Tips of first two primaries pointed, mottling distinct

Juvenile

Tips of first two primaries pointed and frayed, mottling bleached

Yearling

Tips of first two primaries rounded, little mottling

Adult (2 years +)

PHOTOS BY TOM WARREN

Montana's
Eclectic Collec

story by ALEXANDRA MURPHY
photos by JAN L. WASSINK

While exploring the remote peaks of the high Sierras in the 1890s, John Muir encountered thieves. As he lay sleeping, they crept into his camp and stole a pair of snowgoggles, the lid of his teapot, and his aneroid barometer. A few nights later, he woke to the sound of metal scraping granite and caught one of the culprits red-handed, making off with his ice hatchet, pulling, as Muir described it, "with might and main by a buckskin string on the handle."

Little wonder the thief had such a struggle—the ice axe was several times his weight. He was, Muir wrote, a "handsome *Neotoma*," best known as packrat or woodrat, and he was hauling home his latest prize find.

Talk to anyone who has lived in the rural West, and you'll likely hear a woodrat story. Twenty-one species of woodrats inhabit the western hemisphere, ranging from the Northwest Territories to Nicaragua, from the Atlantic to the Pacific, and all have well-developed collecting habits.

Most woodrats live in the deserts of southwestern United States, Mexico, and Central America. Only *Neotoma cinerea*, the bushy-tailed woodrat, lives in the cold, boreal forests of Canada and northwestern United States, including all of Montana.

Despite their unfortunate name association with the little-loved, scale-tailed rodents of storm sewers and corn cribs, woodrats are more closely related to deer mice, lemmings, and voles than to Norway rats. Bushy-tailed woodrats resemble a cross between a deer mouse and a red squirrel: onyx eyes as round as marbles, large ears, buff-colored fur, pink feet, and fluffy tail that serves as warm scarf during the winter, protecting vulnerable paws and nose. They are slightly bigger than red squirrels, with females weighing half a pound and males weighing nearly a pound.

Unless a woodrat nests in your basement and pokes its head into your kitchen on occasion, as one did in my house, you won't often see one. Woodrats are nocturnal, reclusive, and usually solitary. You're more likely to see the aftermath of their activity,

and these signs are every bit as interesting as the woodrats themselves.

Woodrats make a delectable meal for a host of predators, including black bears, coyotes, owls, snakes, martens, and weasels. To protect themselves, woodrats build dens that enclose their grass-lined nest cups. White-throated and desert woodrats of the Southwest construct formidable mounds of cholla and prickly pear cactus pads piled at the base of shrubs or under rock ledges. Because snakes and weasels are streamlined enough to bypass such defenses, woodrats make several exits, so if a snake slides in one hole, the woodrat can slip out another.

Bushy-tailed woodrats build less elaborate dens than most other woodrats. They rely instead on existing caves or deep clefts under rock slabs. For these cold-climate woodrats, protection from temperature extremes is as crucial as safety from predators. Rock piles and caves function as thermoregulators, staying cool in the summer and warm in the winter. While outdoor temperatures fluctuate from -40°F to 90°F, temperatures within the woodrat den vary annually by only 30°F. The woodrats wedge sticks and stones between rock slabs to seal off their den entrances. If you see these barricades in boulder-strewn terrain, there's probably a woodrat nearby.

Because the bushy-tailed woodrat remains active throughout the winter and may be snowed into its den for days or weeks at a time, the den is a critical storage site for food. Woodrats primarily eat green leaves supplemented with cactus pads, fruits, seeds, and fungi. Bushy-tailed woodrats are food generalists, sampling virtually any edible plants in their home range, a 30- to 50-meter radius from the den. An excellent climber, the woodrat clips leaves from trees, shrubs, and flowering plants, including aspen, Douglas-fir, ponderosa pine, alder, juniper, and dogwood, and stows them in the den. In one den, researchers found three bushels of cuttings taken from more than 300 plant species.

This leafy diet is high in fiber, but low in nutrients. Woodrats often eat their feces to take advantage of any nutrients not absorbed the first time through. The bushy-tailed woodrat's large size—with a low surface area-to-volume ratio that limits heat loss—enables it to survive on this low fat, low protein diet in the frigid reaches of northern Canada. Because their poor diet keeps them in chronic energy stress, they grow and reproduce slowly; a female woodrat bears between one and four young in a litter and has one to three litters between February and July. Deer mice, by comparison, bear two to seven young per litter, with several litters throughout the year.

Young woodrats are born with their incisors splayed, like open scissors. With these, they attach to the mother's nipples and remain that way for three weeks. If startled, the female will dart to safety, dragging her nipple-bound young with her, their combined weight often exceeding her own. The young remain with their mother for two months before venturing to find dens of their own, spending most of that time stacking sticks, chasing one another, and wrestling.

When you come upon an active woodrat den, one of the first things you'll notice as you bend close to examine it is a strong, sour, musky smell. In part, the smell comes from fresh woodrat urine. Male woodrats also secrete a brown, waxy musk from sebaceous glands on their abdomens. As they move about their territories, woodrats rub these glands against rocks and branches. The scent creates a trail marker in the dark and identifies the male woodrat to females.

Although bushy-tailed woodrats are generally solitary and aggressive towards other members of their species, many dens house several woodrats, usually one male and two or three females. Good, warm nest sites are hard to come by in many parts of the woodrat's range. The adaptive advantage of sharing good sites where all females can reproduce successfully outweighs the instinct to live separately and attempt to reproduce in marginal sites. Residents of the harem, as researchers call these woodrat groups, share collected food, increasing survival chances even more.

Woodrats collect far more than just food. Mounded into the woodrat dens on the talus slopes flanking my home, I've found lumps of dried cow dung and coyote scat, mule deer ribs and vertebrae, and dozens of scattered deer mouse skeletons. In one bushy-tailed woodrat den in Colorado, researchers uncovered bones from 11 animal species, from black bear to dusky grouse. Woodrats may nibble these bones for the calcium they contain, though none of the bones I've seen bore gnaw marks.

When woodrats build dens near or within human habitations, their eclectic scavenging tastes become even more pronounced, as I recently discovered firsthand. For several weeks, I had heard occasional gnawing and scrambling about in the crawlspace below my bedroom, noises distinctly louder than those of deer mice.

On hands and knees in the crawlspace's dark and musty confines, I found a spectacular den. The woodrats had pulled sheets of insulation from between the floor joists to make gloriously soft nest cups and platforms for their treasures. On those platforms, I found things I'd been missing for weeks, some I never knew I'd lost or even owned: five sponges, two pencils, three pens, a package of sewing needles, a package of razor blades, teflon tape, a can of Copenhagen chewing tobacco, a sink stopper, a nail scrub brush, and a tube of my favorite lip balm.

Also in the den were copious bits of newspaper and what seemed like a million fecal pellets. The woodrats had protected their stash with a few dozen prickly pear pads and garnished it with skunkbush leaves.

Had I left the woodrat den undisturbed in the basement, a researcher studying the den a century from now could have learned much about the woodrats' home territory. (In fact, I cleared away the den, live-trapped the two responsible woodrats, and relocated them in what I now affectionately call Packrat Canyon, but that is another story.) The collected objects suggest an amusingly accurate, if sketchy, picture of my life and that of those who lived here before me.

In the same way, researchers are now examining woodrat dens in more natural

settings to learn more about the landscape's history and occupants. Much of the debris that a woodrat brings to its den goes uneaten. The woodrat urinates and defecates on these "trash piles," embalming them, over time, in a dark, cement-like, crystallized mass vaguely reminiscent of peanut brittle.

Researchers call these concretions "middens." Woodrats often occupy good den sites for generation after generation, so these middens can build in layers for thousand of years, reaching epic proportions, sometimes more than six feet high. Often, you'll see a midden clinging to a sheer rock face, left hanging by the glue of its urine when the rock that once held it fell away.

Paleontologists have discovered that these middens hold the key to understanding migration of plant and animal species across the western landscape. By identifying and radiocarbon-dating the trapped pollen, leaves, seeds, twigs, bones, and scat, researchers can recreate historic ecosystems, forming, paleontologist Peter Wigand says, "a snapshot of the flora and fauna existing within about fifty meters of the midden at the time it was accumulating." Some dens have been occupied for more than 40,000 years. Their middens reveal dramatic changes in the landscape during that time.

At the height of the last ice age 18,000 years ago, temperatures were significantly lower in the western United States, and plant and animal species migrated to lower and more southern locations. Woodrat middens have helped clarify just how great the temperature shifts were and how far the plants and animals migrated.

Studies from middens in the Sonoran desert, for example, show that temperatures at that time were 11°F cooler than today; researchers found ponderosa pine needles in middens now surrounded by desert shrublands.

There are limits to the accuracy and scope of midden records. Just as the woodrats' sampling of my home could scarcely be called a complete and conclusive glimpse of my life, so most midden samples are biased to some degree by the woodrat's collecting habits. Of all woodrat species, the bushy-tailed woodrat, by the sheer volume and diversity of its collections, creates the most accurate landscape sampling.

Midden samples are also shedding light on changes in plant structure over the last 40,000 years. Leaves collected at the end of the last ice age bear many more carbon dioxide-absorbing pores, or stomata, than plants today, suggesting to researchers that the atmosphere contained less carbon dioxide than it now does.

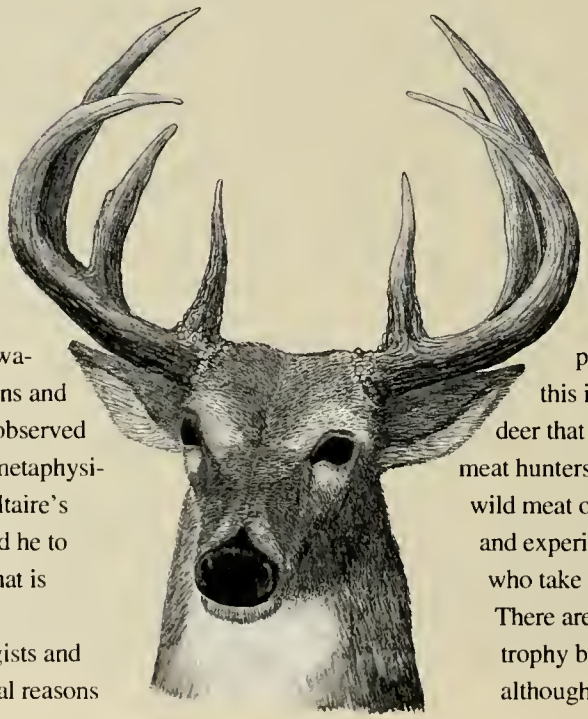
The science of studying woodrat middens is a fledgling one; researchers have only begun to tap the information stored in these knobby concretions. In the midst of this flurry of research, the woodrat carries on with business as usual, gathering food and treasures for its den in the safety of darkness.

My basement is cleaner and fresher now that the woodrats are gone. The house seems strangely empty without their industrious nighttime noises. I feel certain, though, that it won't be long before another woodrat discovers the fine den site in the crawlspace and my pencils and pens disappear once again. ■

The bushy-tailed woodrat's eclectic scavenging habits prompt it to carry a variety of articles—edible and nonedible—to its den.

Why Men Hunt

story by JOHN MADSON, illustrated by JOHN ROBINSON



Fifteen years ago, when my friend John Mitchell was writing *Bitter Harvest*, he solicited my views on hunting.

We spent most of a day in a johnboat on a Mississippi River backwater while he asked penetrating questions and I provided fuzzy answers. He finally observed that my perceptions of hunting were metaphysical—and he was right, supporting Voltaire's contention that "When the speaker and he to whom he speaks do not understand, that is metaphysics."

I once spoke at a seminar of biologists and offered some general, rather superficial reasons for why men hunt deer. They do so for many reasons, any one of which may be enough.

A common one, of course, is the *meat reason*. The woods are full of people who claim to be hunting for prime meat, although I've a hunch that this is a standard alibi for busting the first deer that comes along. Yet, there are some real meat hunters—men who are pretty good at judging wild meat on the hoof, and who have the patience and experience to carefully pick and choose, and who take pride in the quality of their venison. There are still a few old hands who will pass up a trophy buck for a plump little forkhorn—although they are often experienced hunters who

have already taken their share of trophy bucks.

Then, of course, there's the *trophy reason.*

In its shallowest context, it is simply an exhibitionist effort to display prowess and status. In a deeper context, it goes beyond that.

Aldo Leopold once observed that "Poets sing and hunters scale the mountains primarily for one and the same reason—the thrill to beauty. Critics write and hunters outwit their game for one and the same reason—to reduce that beauty to possession."

Those trophy antlers on the wall may not be only a hunter's effort to possess beauty, but also to keep something important to him from slipping away and being forgotten. And if the trophy testifies that here is a strong and skillful hunter—well, what's the use of denying it?

And so the great stag has been stalked and taken.

Ten thousand years ago the hunter might have stood by a fire and recounted the great deed to his clan brothers, while the old men nodded their approval and stripling boys back in the shadows listened in wonder. It hasn't changed much. The trophy hunter, the ethical killer of the great stag, or bear, or ram, still commands attention by the fire as he recites his deeds. His peers still salute him, the old men still nod and remember, and boys still dream of tomorrow's hunts.

Most of us will never kill the great stag. Yet, we have all taken deer that held special trophy value for us, and such value is not always a measure of tine and beam. It may be just a measure of hard, solid hunting in which both man and deer conducted themselves well, so that neither was shamed.

Trophy hunting has been bitterly condemned for an alleged deterioration of a game stock by killing off the best males. Yet, neither the mathematics of genetics nor the observed facts of breeding within wildlife populations add support to that contention. A five-by-five mule deer buck is nearing the end of his days and has already done his share of genetical work. Still, that is empty sophistry if the taking of that trophy is unethical—in which case it is not a trophy at all.

Companionship can be a strong element in hunting. For as long as men have hunted, they have banded into special hunting packs with their own taboos, traditions, and rituals. And sometimes the companionship and the rituals become more important than the hunt itself, and sometimes the greatest pleasure is in anticipation and recollection, with the hunt only serving to bond the two.

A considerable part of our modern sport hunting (as with much of our daily living) is the *exercise of technology.* That is, the employment of gadgetry for its own sake. I plead guilty to that in part, for a fine rifle or shotgun plays a significant part in my enjoyment of hunting. I admire the skill and artistry that go into the making of such guns—but I am uninterested in any gun, however beautifully wrought, if I cannot shoot it well. I count myself as a good shot. When the day comes that my eyes and reflexes impair that ability, I will not hunt again.

Our critics are fond of pointing out that wildlife has scarcely a chance against our highly efficient technology. But the fact is, wildlife has an edge of its own—and it is likely to be enhanced by our increasing dependence on gadgets and less reliance on our legs, eyes, ears, patience, and the savvy that accrues from years of experience. A good working definition of a game species is one that is fitted with survival equipment enabling it to *take* advantage, while a genuine sport hunter is one constrained by ethics and respect to *give* advantage.

But as much as anything else, one of the greatest urges impelling such a hunter is his search for *freedom,* and for the genuine personal adventure inherent in such freedom. Just as game species may be the truest indicators of quality natural environments, so hunting can be an indicator of quality natural freedom.

Dr. Murdock Head told of a noted physician who was visiting an Adirondack deer camp for the first time. He was not a hunter; it was all new to him. As he stood by the cabin door one evening, watching hunters dress deer while their companions offered unsolicited advice, listening to the good laughter and easy talk, the doctor turned to his host with a look of sudden comprehension, and said: "Why, these men are free!"

Pascal once observed that the virtue of hunting is not in possessing game, but in the pursuit of it. By being absorbed in looking outward for game, "the hunter is absolved of the really insupportable task of looking inward upon himself." And so the hunter's eyes are directed outward instead of inward, and myriad nagging, worrisome concerns are overlain with the illusion of being part of an older, freer world.

I once asked an old river rat of long acquaintance why he was such a deeply committed hunter.

He thought for a moment and replied: "Why—to git away from the house and git out amongst 'em, mainly...."

Homer once said much the same thing: *Manet sub iove frigido Venator/Tenerae coniugis immemor.* Which renders out as "The hunter goes his way 'neath frigid skies unmindful of his tender spouse."

Theodore Roosevelt was far more diplomatic about it: "Sweetest little wife, I think all the time of my little laughing, teasing beauty...and I could almost cry I love you so. But I think the hunting will do me good."

(I know wives that would agree; hunting gets their husbands out from underfoot during a time of year when they're not much good around the house, anyway....)

One strong flash of this to a boy—one swift, heady taste of an utter wild freedom and perception—is enough to keep him hunting all his days. Not just for meat, or horns, but for that flash of insight again, trying to close the magic circle of man, wildness, and animal.

The genuine hunter is probably as free as it's possible to be in this technocracy of ours. Free not because he sheds civilized codes and restraints when he goes into the woods, but because he can project himself out of and beyond himself, out of and beyond the ordinary, to be wholly absorbed in a quieter, deeper and older world.

You know how it is. When you go into the woods your presence makes a splash, and the ripples of your arrival spread like circles in water. Long after you have stopped moving, your presence widens in rings through the woods. But after a while this fades, and the pool of silence is tranquil again, and you are either forgotten or accepted—you are never sure which. Your presence has been absorbed into the pattern of things, you have begun to be part of it, and this is when the hunting really begins.

You can always feel it when those circles stop widening; you can feel it on the back of your neck and in your gut, and in the awareness of other presences. This is the real start of the hunt, and you'll always know when it happens and when you are beginning to hunt well.

There were those times when I was a kid, hunting and trapping and sometimes spending several days and nights alone in the woods, when I'd have a flash of insight that was often gone as swiftly as it came—a vague sense of what aboriginal hunters must feel, and what real hunting, the pure-quill honest-to-God real hunting is all about. One strong flash of this to a boy—one swift, heady taste of an utter wild freedom and perception—is enough to keep him hunting all his days. Not just for meat, or horns, but for that flash of insight again, trying to close the magic circle of man, wildness, and animal.

Is blood lust a prime motivation of hunting, as some of our critics contend?

The late Dr. C. H. D. Clarke pointed out that perverted and inadequate people may indeed hunt, but contended that this is not the story of hunting.

The human investment of hunting with magic, he felt, was a logical development of being able to think about nature, and wonder where the next feast was coming from. When the magic is truly embedded, it is part of our inheritance. Hunting still has (for some of us) its pre-human excitement and prestige, and its human magic, and when we hunt there is a deep satisfaction that comes from a contact with nature that is healthy and traditional. Blood lust it is not. The deepest fear of the primitive hunter is of offending the spirit of the game. Clarke once saw an old Eskimo who, when young, had been deliberately blinded by his fellow hunters. They were afraid because the man had been disrespectful to a caribou he had killed. For such a sin there had to be a terrible expiation. We do not do that anymore, nor do Eskimos, but the unethical hunter is at least uneasy—and if he is an Eskimo he may be afraid.

Sport hunting, Clarke went on, can surely put us inside the world of nature. The real hunter does not go into that world of nature as a casual onlooker, but as an active participant.

Speaking personally, there are many uses of outdoor October, and I savor them all. I could drink that ale-golden month to its dregs and never touch a gun. But without hunting, some of the savor would be missing. Lovely and rich as autumn would still be, a certain condiment would be gone and I think I know what it is. It is seeing grouse and pheasants and quail and mallards at closehand as any predator might, and seeing how fine-tuned, ingenious and intricate their responses to predation can be. I might watch game birds and animals at all seasons under a full range of conditions, and yet never know them as I do when I am hunting them well and they are doing their usual fine job of parrying my thrusts.

Hunters may try to reduce their motives to such tangibles as trophies, meat, good dogwork, companionship, exercise, freedom in quality environments, or simply "adventure." Underlying all that, however, are deeply embedded reasons that neither hunter nor psychologist is really equipped to fathom.

Our severest critics are much surer of themselves. The kindest thing they say about us is that we are cruel and dangerous children; at our worst, we are barbarians that revel in the joy of inflicting pain and death. And there is some truth in all of that. We cannot deny that such hunters do exist; to do so is to delude ourselves. On the other hand, the shrill anti-hunting critics seem unable to understand the motives that impel what I choose to call the "genuine hunter." That is, the person with a deep personal

Hunting cannot be condoned if it is not based on biological management and does not demonstrate respect for game and the habitats in which it is hunted. On the other hand, hunting is best defended by adherence to sound biological principles and demonstration of a genuine respect for nature.

bond to the game he hunts and the habitats in which he hunts it. Such emotion can result only from the respect which grows from experience and reflection.

Our critics deplore hunting on an emotional basis, just as we hunters defend it. Each extreme would do well to share a more objective position. Both hunter and anti-hunter should be governed by sound biological principle. Hunting cannot be condoned if it is not based on biological management and does not demonstrate respect for game and the habitats in which it is hunted. On the other hand, hunting is best defended by adherence to sound biological principles and demonstration of a genuine respect for nature.

Why do men hunt? It goes far beyond anything I've said here. How can one explain the inexplicable? But after more than 50 years of hunting, I'm pretty sure of two things: that hunting is too deeply rooted in the metaphysical to allow clinical examination—and that it's a happy man who keeps his youthful appetite for that sort of metaphysics. ■